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PARTNER SELECTION MODEL FOR INTERNATIONAL CONSTRUCTION JOINT VENTURES DUE TO HOST COUNTRY RELATED RISK FACTORS

GÜZİN AYDOĞAN

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PROGRAM OF CONSTRUCTION

ADVISER
ASST. PROF. DR. ALMULA KÖKSAL IŞIKKAYA

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Thesis Adviser

Asst. Prof. Dr Almula KÖKSAL IŞIKKAYA

Yıldız Technical University

Approved By the Examining Committee

Asst. Prof. Dr. Almula KÖKSAL IŞIKKAYA

Yıldız Technical University _____

Prof. Dr. Esin CAN, Member

Yıldız Technical University _____

Prof. Dr. Atilla DİKBAŞ, Member

İstanbul Technical University _____

Prof. Dr. İlker TOPÇU

İstanbul Technical University _____

Assoc. Dr. Candan ÇINAR ÇITAK

Yıldız Technical University _____

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I dedicated this dissertation to the memory of my dad.

May, 2014

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LIST OF SYMBOLS

λ_{max} Eigenvector

LIST OF ABBREVIATIONS

AHP	Analytical Hierarchy Process
ANP	Analytical Network Process
CI	Consistency Index
CII	Construction Industry Institute7
CR	Consistency Ratio
CRS	Country Risk Service
EIU	Economist Intelligence Unit
G	Geomean
JV	Joint Venture
IJV	International Joint Venture
ICJV	International Construction Joint Venture
MCDM	Multiple Criteria Decision-Making
MNC	Multinational Cooperation
PRS	Political Risk Services
RAMSCO	Risk Assessment Management System for Construction Operations
S&P's	Standard and Poor's
UNCTD	The United Nations Centre for Corporations

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ABSTRACT

PARTNER SELECTION MODEL FOR INTERNATIONAL CONSTRUCTION JOINT VENTURES DUE TO HOST COUNTRY RELATED RISK FACTORS

Güzin AYDOĞAN

Department of Architecture

Ph.D. Thesis

Advisor: Asst. Prof. Dr. Almula KÖKSAL

Due to globalization internationalization has been on the agenda of the construction firms for the last few decades and has become one of the most important research topics of the literature. International construction involves uncertainties common to domestic construction projects as well as risks specific to the host country. Construction firms mostly evolve collaborative relations with local construction firms as a strategic way of reducing the country risk and gaining competitive advantage. Construction firms also evolve collaborative partnerships with foreign partners in lieu of local partners due to complementary resources of the partners. Since, joint ventures (JVs) allow achieving a temporary partnership between participating firms; JVs have also been emerged as a popular strategy in international construction market. Construction firms have participated in international joint ventures (ICJVs) in order to enter new markets around the world as well as share the risks related to the host country and most of the time imply to the host government policies.

The performance of ICJVs mostly depends on the selection of the appropriate partner and the success in the management process of ventures. Selection of the appropriate partner becomes vital for the success in management process of ventures and the performance of the project. International contractors share host country related risks, improve quality and also create value through successful joint ventures. Therefore, it becomes necessary for international contractors to concern the risks that are related to the host country as well as their potential gains while selecting a partner in order to

establish an IJV. Political, economic, and socio-cultural environment of the host country are the main determinants of country risk. These risk criteria and their sub-criteria are including tangible and intangible variables. Consequently, Analytical Network Process (ANP) is selected as the most appropriate tool for this study, since it also allows interdependencies between the determined tangible and intangible variables. The main aim of this study is to develop a partner selection model for ICJVs due to host country related risk factors. Host country related risk factors including; economic, political and socio-cultural risks, industry related risk factors and projects related risk factors are the determinants of the developed model.

Keywords: Partnerships, international construction joint ventures, international construction, partner selection, analytical network process.

ÖZET

İNŞAAT SEKTÖRÜNDE ULUSLARARASI PROJELERDE ORTAKLIK SEÇİMİNDE ÜLKE RİSKİ FAKTÖRÜNE DAYALI BİR MODEL ÖNERİSİ

Güzin AYDOĞAN

Mimarlık Anabilim Dalı

Doktora Tezi

Tez Danışmanı: Yrd. Doç. Dr. Almula KÖKSAL

Uluslararasılaşma, özellikle son 30 yıldır süren küreselleşmeye bağlı olarak, inşaat firmalarının gündeminin ilk sıralarına yükselmiş ve dolayısıyla literatürde ilgi çeken araştırma konularından biri haline gelmiştir. Uluslararası inşaat sektörü yerel inşaat sektörü ile benzer riskler içermesinin yanı sıra, projenin gerçekleştirildiği ülkeye özgü riskleri de içermektedir. Bu koşullarda firmalar ülke risklerini azaltmak ve rekabet üstünlüğü elde edebilmek için yerel inşaat firmaları ile işbirliği kurma stratejisini gütmektedirler. Bazen de firmalar sınırlı derecede sahip oldukları çeşitli türdeki kaynakları tamamlayabilmek için farklı ülkeden yapım firmaları ile de işbirliği içine girebilmektedirler. Ortak girişimler firmalar arasında geçici bir işbirliği ortamı sağladıkları için uluslararası inşaat sektöründe popüler bir strateji haline gelmiştir. İnşaat firmaları yeni pazarlara girmenin yanı sıra ülkeye özgü riskleri paylaşmak ve gidilen ülkenin hukuki gereksinimlerini karşılamak için uluslararası ortak girişimlere katılmaktadırlar. Kısacası ortaklıklar proje ortamındaki risk ve ödüllerin paylaşılması için bir zemin oluşturmaktadır. Uluslararası ortak girişimlerin başarısı büyük ölçüde doğru ortağın seçilmesi ve ortaklık sürecinin doğru yönetilmesine bağlıdır. Ortaklık sürecindeki organizasyonel faaliyetlerin devamlılığının sağlanabilmesi ve yürütülen projenin başarılı olabilmesi için doğru ortak seçimi önem kazanmaktadır. Başarılı ortak girişimler ülke riskinin paylaşılmasını, kalitenin artmasını ve tarafların ortaklıktan değer yaratmalarını sağlar. Bu nedenle, yapım firmalarının uluslararası pazarda ortak seçimi yaparken proje gerçekleştirecekleri ülkenin pazar potansiyeli doğrultusunda olası kazanımlarının yanı

sıra o ülkenin risklerini de analiz eden bir karar verme yöntemi kullanmaları önem kazanmaktadır. Proje gerçekleştirmek üzere gidilen ülkenin kendine özgü risklerini; mevcut ekonomik, politik ve sosyokültürel koşulları belirlemektedir. Bu kriterler ve bu kriterleri oluşturan alt faktörler sayısal ve sayısal olmayan verilerden oluşmaktadır. Sayısal ve sayısal olmayan verileri birlikte değerlendirebilen çok kriterli bir karar verme yöntemi söz konusu model için uygun olacağından, bu modeli oluşturmak için Analitik Ağ Sürecinin (AAS) kullanılması uygun görülmüştür. AAS nin bu çalışmada kullanılacak yöntem olarak seçilmesinin diğer nedeni ise, kararı etkileyen kriterler arasında bağlılığa ve geri beslemeye olanak tanımasıdır. Bu çalışmanın ana amacı; uluslararası ortak girşimler için ülke riski faktörüne dayalı ortak seçme modeli geliştirilmesidir. Bu çalışma sonucunda geliştirilen uluslararası yapım projelerinde ülke riski faktörüne dayalı ortak seçme modelinin ana değerlendirme kriterlerini; ülke riski (ekonomik, politik ve sosyokültürel risk) faktörleri, sektörel risk faktörleri, projeye ilişkin risk faktörleri olarak sıralayabiliriz.

Anahtar Kelimeler: Uluslararası ortaklıklar, ortak girişimler, uluslararası inşaat sektörü, ortak seçimi, analitik ağ süreci.

CHAPTER 1

INTRODUCTION

1.1 Literature Review

Due to globalization every sector including the construction industry has faced with high levels of competitiveness, uncertainty, and risk. On the other hand; advanced technology, fast transportation, convenient communication, integrated markets and trade liberalization are the other characteristics of the 21th century (Ye et al. 2009 [1]). As a result of this new environment internationalization has been on the agenda of the construction firms for the last few decades and has become one of the most important research topics of the literature.

International construction involves uncertainties common to domestic construction projects as well as risks specific to the host country. Consequently, entry strategies for international construction firms, foreign market entry decision models, international risk assessment models and go/no go decision models for international construction projects have been the main research topics of the international construction literature (Hastak and Shaked 2000 [2]; Han and Diekmann 2001a [3]; Gunhan 2003 [4]).

Entry strategies of international firms into new markets can be classified into a dichotomy: foreign direct investment and partnerships (Can 2008 [5]). Construction firms mostly evolve collaborative relations with local construction firms as a strategic way of reducing the risks related to the host country and gaining competitive advantage (Bing et al. 1999 [6]). On the other hand, in some of the countries construction firms have supposed to have a local partner due to legal restrictions. Construction firms also evolve collaborative partnerships with foreign partners in lieu of local partners due to complementary resources of the partners.

Strategic partnering and project partnering are the two forms of collaborative relations that evolve among firms. Strategic partnering depends on mutual trust, mutual benefit and long-term commitment. Project partnering is a form of collaborative relationship that evolves in a project environment where trust is limited or non-existent (Anvuur and Kumaraswamy 2007 [7]); Cheng and Li 2001 [8]). Due to its project-based organization, project partnering is the way of collaboration that mostly evolves among construction firms. On the other hand, achieving a temporary partnership between the participating firms in a project environment, joint ventures (JVs) have emerged as a popular strategy. JVs can be defined as a special type of project partnering that allows the participating firms to combine their distinctive competencies and complementary resources in a project environment. JVs developed through the collaboration of two or more independent companies in order to share risks and rewards. Firms establish partnerships with firms from different nations through international joint ventures (IJVs) due to globalization. An IJV is a form of JV if at least one of the participating firms is headquartered outside the venture's country of operation (Geringer and Herbert 1989 [9]).

Since, JVs allow achieving a temporary partnership between participating firms; JVs have also been emerged as a popular strategy in international construction market. Construction firms have participated in international construction joint ventures (ICJVs) in order to enter new markets around the world as well as share the risks related to the host country and conform to the host government policies. Consequently, ICJVs have been on the agenda of international contractors and have been a research topic in international construction literature. In this respect, international partnership relation between construction firms is considered as an inter-firm collaboration in order to share risks and rewards in a project environment in this study. As a result of this assumption; ICJVs have been reviewed in construction management literature in order understand the importance of partner selection for the success of international construction projects.

ICJV process can be classified into three phases; partner selection, ICJV formation and ICJV operation. Consequently, selecting the appropriate partner has direct and indirect effects on the success of the ICJV process. Some researchers have pointed out the

importance of the partner fit in ICJVs (Ozorhon et al. 2010 [10]; Mohamed 2003 [11]; Luo 1997 [12]). International contractors mostly participate in projects in developing countries. As Luo (1997 [12]) and Mohamed (2003 [11]) mentioned before; local partner selection has even more direct effects on the joint venture success because of the dynamic and complex environment of the developing countries. Since, foreign firms are unfamiliar with this complex environment of the developing countries, local partner selection is critical for the success of IJVs (Lu and Ma, 2008 [13]).

An appropriate local partner can increase the JVs performance and reduce uncertainty. Organizations gain competitive advantage through partnerships, but many researchers have emphasized the considerable risk and uncertainty associated with entering new partnerships (Barkema et al. 1997 [14]; Reuer and Leiblein 2000 [15]; Park and Ungson 1997 [16]; Parkhe 1993 [17]). Especially, when the partners are from different national cultures, partnerships often fail to work out. Lack of mutual commitment between partners causes misunderstandings that often make the partnerships to come to an end (Cullen et al. 2000 [18]; Reus and Ritchie 2004 [19]; Hyder and Ghauri 2000 [20]). That's why; selecting an appropriate partner is essential for the establishment of a successful venture and becomes an important strategic decision for firms entering foreign markets (Mohamed 2003[11]; Chen et al. 2008 [21]).

Partner selection criteria and partner selection process also have been discussed in international business literature. Partner related and task related criteria were mentioned as the main parameters of partner selection in the literature (Geringer 1991 [22]). In addition to these parameters host country related risk factors should be taken into account in order to establish successful ICJVs.

Host country related risk factors were stated as country risk in literature. Country risk should be defined as the risk that economic, social and political events in a country would adversely affect the financial profits of a company (Vij 2005 [23]). That's why; companies should take country risk into account during internationalization and partner selection.

In example; due to global economic crisis, Dubai government announced that it would ask creditors of Dubai World to postpone debt repayments for six months in 2009. This financial crisis had serious impact on the construction sector in Dubai. The construction

of the Nakheel (the world's tallest building) had stopped as a consequence of this financial crisis. Recently, international contractors have faced problems due to government changes and internal conflicts in Libya. All construction projects had come to an end and contractors had serious problems in taking their labour back to Turkey and maintaining security in construction side.

Political risks, economic risks and socio-economic risks are the determinants of host country related risk factors. Many researchers have pointed out the negative effect of the failure in assessing political, economic, cultural, and legal environment of a project on the profitability of firms in a foreign market (Ashley and Bonner 1987 [24]; Han et al. 2007 [25]; Roy and Oliver 2009 [26]; Isik et al. 2010 [27]; Abdelghny and Ezeldin 2010 [28]). Some researchers have studied the effects of host country related risk factors in international construction theory (Hastak and Shaked 2000 [2]; Han and Diekmann 2001a [3]; Gunhan 2003 [4]; Guhan and Arditi 2005 [29]; Isik et al. 2010 [27]; Ozorhon et al. 2007a [30]).

Hastak and Shaked (2000 [2]) have developed a risk assessment model for international construction. According to this model there are three levels of risk including; macro, market and project risk. In this risk assessment model host country related risk factors are defined as the macro risk. The model is based on the analytical hierarchy process (AHP). Han and Diekman (2001a [3]) also have developed a go/no go decision model for international construction projects due to the risks. Gunhan (2003 [4]) has developed a foreign market entry decision model based on AHP for construction companies. Recently, Abdelghny and Ezeldin (2010 [28]) have developed a decision support system that evaluates the project's overall risk to minimize the ICJV failures.

Host country related risk factors have effects on the companies' decision to expand into new markets as well as on the performance of the project (Han et al. 2005 [31]; Ozorhon et al. 2007a [30]). The vulnerability of IJVs to exogenous factors in an uncertain environment has mentioned before by researchers (Zhi 1995 [32]; Han and Diekmann 2001a [3]; Hastak and Shaked 2000 [2]; Mohamed 2003 [11]). That's why; choosing the appropriate partner due to host country related risk factors becomes necessary for the success of the project.

Han et al. (2005 [31]) has mentioned the reasons of failures in international construction projects. According to Han et al. (2005 [31]), one of the reasons for the failures is the selection of the inappropriate project partner. Although selection of the appropriate partner has been mentioned as a performance criterion for ICJVs, a model for selecting a proper partner for ICJVs has not developed. Recently, Roy and Oliver (2009 [26]) investigated the influence of host country's legal environment on the partner selection criteria and the overall performance of IJVs and developed a conceptual partner selection model. Findings of the study by Roy and Oliver (2009 [26]) suggested that the legal aspect of the institutional environment of the IJVs host country is an important factor in determining partner selection. A research which is discussing the effects of host country related factors on partner selection has not achieved in construction management literature. Determining out this gap; a partner selection model for international construction projects due to host country related risk factors is developed by applying ANP approach in this study.

1.2 Objective of the Thesis

The major aim of this research is to develop a partner selection model for ICJVs in the international construction market due to host country related risk factors. The model will enable company managers to select the appropriate partner in a specific country for a specific project among potential partners.

In this respect, following are the objectives of this study:

- Determining of the importance of partner selection for the success of ICJVs. Discussion of the partner selection criteria and models in IJVs and ICJVs.
- Developing the relation matrix of the determined risk criteria including host country related risk factors -economic risks, political risks, socio-economic risks-, industry related risk factors and project related risk factors.
- Setting a conceptual framework of partnering selection for ICJVs due to host country related risk factors.

- Determining the priorities of the host country related risk factors, industry related risk factors and project related risk factors on partner selection for ICJVs due to the opinions of the experts who are working for Turkish international construction firms.
- Discussions of the differentiation between the partner selection criteria in practice and the characteristics of the selected partner based on the hypothetical scenario.

1.3 Hypothesis

The main aim of this study is to develop a partner selection model for ICJVs due to host country related risk factors. ANP is the most appropriate tool as a research methodology to develop the partner selection model for ICJVs due to host country related risk factors. The main reason of this hypothesis is the interrelation between risk criteria.

In this respect, following are the hypothesis of this study.

- Host country related risk factors have major effects on partner selection for ICJVs.
- Host country related risk factors have major effects on industry related risk factors and project related risk factors.
- Economic risks, political risks and socio-cultural risks are the parameters of host country related risk factors and these risk clusters have an interdependent relation since they have effects on each other.
- Industry related risk factors and project related risk factors are the other parameters of partner selection model for ICJVs due to host country related risk factors.

CHAPTER 2

LITERATURE REVIEW OF PARTNERING

Internationalization has been one of the main research topics in management science as well as in construction management due to globalization. High level of risks and competitiveness are the core subjects of internationalization. Host country related risk factors define the level of risk. International contractors usually adopt joint ventures in order to reduce host country related risks and gain sustainable competitive advantage in global market. That's why; working with the appropriate partner is essential for the success of ICJVs and the sustainable competitiveness of international contractors. In order to understand partnerships, partnering and alliancing phenomenon is reviewed both in management science and construction management literature. This chapter covers a literature review of partnering phenomenon including its definition, its motivations and its difficulties in international construction.

2.1 Definition of Alliance

Alliances are often defined as a durable, voluntary business arrangement between two firms involving exchange, sharing, or co-development of products, technologies, and services (Gulati 1998 cited in Becerra et al. 2008 [33]). Alliances are also defined as mechanisms for firms to learn from each other, which helps them to recognize dysfunctional routines and blindspots (Teece and Pisano 1994 cited in Becerra et al. 2008 [33]).

Alliance is defined as a unique organization (such as joint ventures) that has been created by two or more firms, in which each firm retains its individual identity and internal control. According to this explanation the purpose of an alliance is to; achieve

joint strategic goals, reduce risk while increasing rewards and/or leverage resources (http://www.businessdictionary.com [34]).

Strategic alliance is defined as an agreement for cooperation among two or more independent firms to work together toward common objectives. In this definition it is also emphasized that unlike in a JV, firms in a strategic alliance do not form a new entity to further their aims but collaborate while remaining apart and distinct (http://www.businessdictionary.com [34]). On the other hand, in management science literature strategic alliance has also been defined as an agreement where two or more firms pool resources to form a new, mutually beneficial business arrangement to accomplish preset objectives (Digman 1999 cited in Demirkan 2007 [35]).

In Business & Management Dictionary [36] strategic partnering is defined as a structured collaboration to take joint advantage of market opportunities, or to respond to customers more effectively than could be achieved in isolation. And JVs are also defined as a closely related concept. In literature strategic partnering and strategic alliances were reviewed as a related concept.

Equity joint ventures, minority equity alliances, bilateral contract-based alliances and unilateral contract-based alliances are the major categories of alliances (Das and Teng 2000 [37]). Joint venture is defined both as a special type of alliance and as a special type of strategic alliance in literature (Sillars and Kangari 2004 [38]; Demirkan 2007 [35]). JVs can also be defined as a special type of project partnering that enables a temporary partnership between the participating firms in a project environment. JVs developed through the collaboration of two or more independent companies to share risks and rewards.

Walker et al. (2002 [39]) defined the differences between partnering and alliancing. According to Walker et al. (2002 [39]) partners may gain rewards at the expense of other partners in partnering, but in alliancing each partner gain or lose together.

2.2 International Joint Ventures

Organizations have faced with high levels of competitiveness, uncertainty, and risk in global market. The characteristics of the global market are; advanced technology, cross-cultural communication and sustainable competitiveness. In this environment an

organization that is not adequately enabling and motivating new possibilities is more likely to witness its own decline (Moran and Ghoshal 1999 cited in Phelps 2010 [40]). Consequently, internationalization has been on the agenda of organizations for the last few decades as well as becomes one of the most important research topics of the literature.

International markets involve risks common to domestic market. Besides these risks, host country related risk factors including economic risks, political risks and socio-economic risks have effects on international market. Firms evolve strategies in order to avoid the effects of host country related risk factors while entering new markets. Strategic alliances have become an important strategic option as a way of entering into new markets and reducing the risks specific to the host country. Strategic alliances also have emerged as an inter-organizational design that enables firms to cope with the increasing complexity of learning and building new sources of competitive advantage to compete successfully in the global economy (Lei et al. 1997 cited in Walter et.al 2008 [41]). There has been a growing interest in international interfirm collaborative relations for the last few decades. Consequently, strategic alliances have been one of the most important research areas of the international business literature (Hitt et al. 2000 [42]; Ireland et al. (2002) [43]; Lu and Beamish 2006 [44]). International alliances can be defined as a collaborative organizational arrangement between firms located in different countries. On the other hand, IJVs a special type of strategic alliance has been emerged as a popular strategy used by firms entering new markets (Lu and Beamish 2006 [44]; Lu and Ma 2008 [13]). According to Geringer and Herbert (1989 [9]), an IJV is a form of JV if at least one of the participating firms is headquartered outside the venture's country of operation. In general, it is possible to summarize an IJV as an equity sharing in which partners pool their resources, share risks, and control the operation in order to achieve their goals.

Since participation in an IJV is an important strategic option in global environment, IJVs has been one of the most important topics of the international business literature. Alliances and strategic alliances have been one of the most important research topics of the literature for the last few decades. Management International Review (1988, 28: 2), published the special issue on co-operative issues in international business.

Academy of Management Journal (1996, 39: 6), Journal of International Business Studies (1996, 27), and Management International Review (1990, 20) also has published special issues on this topic. Organization Science (1998, 9: 3) has published a special issue on Managing Partnerships and Strategic alliances. Strategic Management Journal (2000, 21: 3) has also published a special issue on Strategic Networks.

There are many economic and political reasons for the dramatic acceleration in the rate of IJV formation in global market. Motivations for developing IJV have been emphasized by researchers. Gaining access to a restricted market or overcoming barriers to entry, speeding up entry into new markets, improving an organization's competitive advantage, improved capabilities in terms of size and scope of work carried out, learning from a partner, gaining access to complementary resources, overcoming uncertainty, maintaining market stability, sharing risky and development projects were mentioned as the main reasons for establishing international collaborative relations (Koza and Lewin 2000 [45]; Walter et al. 2008 [41]; Becerra et al. 2008 [33]; Lee and Park 2008 [46]; Norwood and Mansfield 1999 [47]).

Firms reduce the negative effects of political and economic risks in emerging markets by establishing collaborative relations with a local partner. The local partner provides downstream resources such as access to local markets and knowledge of local regulations and access to the government. Local partner is in charge of the relations with government as well as market. Briefly, IJV allows firms to reduce its liability of foreignness. Liability of foreignness related to the costs of doing business overseas, that a firm operating a facility in a foreign market incurs compared to a local firm (Zaheer and Mosakowski 1997 cited in Meschi and Riccio 2008 [48]). Foreignness is a liability, especially in emerging markets due to political and economic related risk factors as well as cultural distance (Yan 1998 cited in Meschi and Riccio, 2008 [48]).

Beamish (1987 [49]), listed the needs of a partner in five groups including; items readily capitalized, human resource needs, market-access needs, government/political needs, and knowledge needs in IJVs. Kogut (1988 [50]) classified the motivations of IJVs in three approaches through literature review. Transaction costs, strategic motivations and organizational knowledge and learning are the main motivations of IJVs. (Kogut 1988 [50]; Gulati 1998 [51]). The theoretical approaches concerning the motivations

for IJV formation can be categorized in four main areas including; transaction costs economics approach, the competitive strategy approach, the organizational knowledge and learning approach, and the resource dependence or organization theory approach. Reducing risk, cost, competition and uncertainty, gaining technological advantage, first mover advantage, entering trade barriers, increasing flexibility, and gaining value chain through complementary between partners are some of the other motivations of IJV formation (Harvey and Lusch 1995 [52]; Child and Faulkner 1998 [53]).

- **Transaction Costs Economics / Internalization Approach (Cost-oriented Strategy)**

Transaction cost economics is depending on minimizing the sum of transaction costs and production costs (Williamson 1975 [54]). According to this approach, IJVs are the most appropriate strategy as they reduce the sum of production and transaction costs more efficiently than other alternative strategies (Williamson 1975 cited in Kapmeier, 2008 [55]). Kogut (1988 [50]) defined transaction costs as the expenses incurred for writing and enforcing contracts, for handling over terms and contingent claims, for deviating from optimal kinds of investments in order to increase dependence on a party or to stabilize a relationship, and for administering a transaction.

Researchers suggest that IJVs should be preferred "when the transaction costs associated with an exchange are intermediate and not high enough to justify vertical integration."(Gulati 1995 cited in Das and Teng 2000 [37]). The reason of the firms' decision to form an IJV rather than acquisitions in case of high transaction costs was discussed in literature through transaction cost economics theory (Hennart and Reddy 1997 cited in Reus and Ritchie 2004 [19]).

- **Strategic Behavior Approach (Strategy Oriented)**

Strategic behavior can be defined as an alternative approach that depends on how strategic behavior improves the competitive position of the firm. Kogut (1988 [50]) suggests that strategic behavior refers to the influence of strategic behavior on the asset value of the firm. There are many strategic motivations for the formation of IJVs such as maximizing the profits and gaining access to a restricted market. Firms also increase their potential in the market, reduce the existing risks and improve their competitive advantage.

- **Organizational Learning Approach (Learning Oriented)**

Organizational learning in IJVs happens in two ways; learning from partner's technology and skills, and learning how to manage IJVs. Technological skills can be defined as specific knowledge (Glaister et al. 2003 cited in Pak et al. 2009 [56]). On the other hand the management strategies and culture of the firm is the tacit knowledge that can only be transferred by learning alongside the firm. According to organizational learning approach the success of an IJV can be determined by the extent to which partners learn from each other (Kogut 1988 [50]). Reus and Ritchie (2004 [19]) suggested investigating differences in hostile and friendly learning in order to see the influences of each way of organizational learning on the stability and success of the IJVs.

- **Resource Dependency Approach (Resource Oriented)**

The resource dependency theory has recently emerged as an alternative approach to understanding industrial organizations and their competitive strategy. Firms that are lacking in particular competencies can achieve resources by establishing cooperative strategies (Child 2005 [57]). Since, IJVs are fundamentally the result of resource integration; a resource based theory view is more efficient on conceiving collaborative relationships between firms (Das and Teng 2000 [37]). On the other hand, pooling of specific resources and skills by the cooperating firms has been mentioned as the main motivations of IJV formation (Hyder and Ghauri 2000 [20]).

Companies gain numerous advantages through cooperative organizations. Organizations gain competitive advantage in global market as well as share and reduce the existing risks by establishing collaborative inter-firm relations. IJVs improve firms' competitive position by providing complementary resources from other firms. IJVs also offer easier access to new markets, access to local knowledge and opportunities for mutual synergy and learning (Child 2005 [57]).

Despite the several advantages that organizations gains through IJVs, many researchers have emphasized the considerable risk and uncertainty associated with entering new partnerships in global market (Kogut 1988 [50]; Gulati 1995 [58]; Gulati et al. 2009 [59]). IJVs are formed between firms from different cultures. Consequently, cross cultural management in IJV process is one of the main challenges of IJVs. Lack of trust,

deceit and opportunism, strategic incompatibility, poor organizational integration and ineffective management of internal tensions are the other challenges of IJVs (Das and Kumar 2010 [60]).

Das and Teng (2001 [61]) classified the risks in IJVs in two groups including relational risk and performance risk. Relational risk refers to the failures depending on difficulties in relationships between participants. Performance risk refers to the failures such as variance in market conditions and the competency of the firm partner. Das and Teng (2001 [61]) proposed a risk perception model for IJVs seeking to explain the choice of venture structure as the result of a decision-making process.

Park and Ungson (2001 [62]) have mentioned the need of a theoretical framework to describe the conditions and dynamics leading to the failure of IJVs. Park and Ungson (2001 [62]) have mentioned that more than half of the IJVs fail and the outcomes of these failures can be devastating. Poor partner selection and poor management practices are the main causes of failures in IJVs (Holmberg and Cummigs 2009 [63]).

Barkema et al. (2007 [14]) figured out that IJVs failure has been confined to lack of skills needed to manage affiliates dispersed in unfamiliar foreign environments. The success of IJVs depends on a stable business relationship that enables the expectations of each partner over the long-term political tensions (Franko 1971 cited in Park and Ungson 2001 [62]). According to Barkema et al. (2007 [14]), sharing ownership with a partner whom has distinct goals is another important indicator for the failure in operation IJVs.

Cultural and organizational differences of partners, uncertainties due to environmental factors and the inability of firms in understanding the dynamism in partnerships were mentioned as the other reasons for failures of IJVs (Hyder and Ghauri 2000 [20]). IJVs often fail to work out due to cultural differences. Cultural distance can be defined as the differences between institutional environments of two countries. The regulatory, cognitive, and normative institutions in a country are the indicators of the institutional environment of country (Chiao et al. 2009 [64]). Cultural distance causes information asymmetry and opportunistic behavior between partners. Lack of mutual commitment between partners causes misunderstandings and conflicts that often make the partnerships to come to an end (Chiao et al. 2009 [64]; Cullen et al. 2000 [18]; Kaufmann and O'Neil 2007 [65]). Previous studies figured out that dissolution of

partnerships is highly correlated with parent firms reported dissatisfaction with venture and perceptions of how the ventures performed relative to their initial objectives (Geringer and Herbert 1989 [9]; Park and Ungson 2001 [62]). Therefore, selecting an appropriate partner is essential for the establishment of a successful venture. IJVs are formed between firms from different cultures. That's why; selection of an appropriate partner and effective cross cultural management in IJV process are the main challenges of IJVs.

2.3 Partnering in Construction

The interest in construction partnering has increased during the last two decades. The partnering practice has been on the agenda of clients and contractors as a new way of project procurement system that helps to reduce the litigation between project parties. The construction industry has an adversarial culture. Conflicts arise due to fragmentation and hierarchical relations of the project parties. And these conflicts may adversely have effects on the performance of the project. Duration time of the project, cost overruns and poor quality production are some of the conflicts that arise between project participants. Partnering can be described as a simple process of dispute resolution that encourages project participants to work towards shared objectives (Black et al. 2000 [66]). Partnering also achieves a better project management process through better communication between the project parties.

Strategic partnering and project partnering are the two forms of collaborative relations that evolve among firms. Strategic partnering depends on mutual trust, mutual benefit and long-term commitment. Project partnering is a form of collaborative relationship that evolves in a project environment where trust is limited or non-existent (Anvuur and Kumaraswamy 2007 [7]; Cheng and Li 2001 [8]). Cheng and Li (2001 [8]) have discussed the main differences and similarities between strategic partnering and project partnering by examining the critical success factors that have effects on the partnering process including formation, application and reactivation phase. Findings of this study predicted that; top management support, mutual trust, open communication and effective co-ordination are the critical success factors which have effects both on project partnering and strategic partnering. Due to its project-based

organization, project partnering is the way of collaboration that evolves among construction firms.

The partnering phenomenon has frequently discussed in the literature. Definition of partnering, benefits of partnering, critical success factors of partnering and key performance indicators of partnering are the main topics of the partnering literature (Bennet and Jayes 1998 [67]; Sanders and Moore 1992 [68]; Anvuur and Kumaraswamy 2007 [7]; Nyström 2005 [69]; Eriksson, 2010 [70]; Bresnen and Marshall 2000a [71]; Bresnen and Marshall 2000b [72]; Bresnen 2007 [73]; Black et al. 2000 [66]; Cheng and Li 2002 [74]; Cheng et al. 2000 [75]).

Construction Industry Institute (CII) (1991 [76]) defined partnering as:

> *''A long-term commitment between two or more organizations for the purposes of achieving specific business objectives by maximizing the effectiveness of each participant resources. This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based on trust, dedication to common goals, and an understanding of each other's individual expectations and values.''*

Many researchers have discussed the characteristics and the meaning of partnering in construction management. According to Sanders and Moore (1992[68]) partnering is a technique that creates an effective project management process between two or more organizations. Bennet and Jayes (1998[67]) defined partnering as *"a set of strategic actions that deliver vast improvements in construction performance. It is driven by a clear understanding of mutual objective co-operative decision-making by a number of firms who are all focused on using feedback to continuously improve their joint performance."*

On the other hand, Nyström (2005[69]) suggested that there should be different definitions of partnering due to specific environmental factors. Within this study, Ludwig Wittgenstein's idea of family-resemblance has been applied to partnering concept. Family resemblance theory was defined by the term "game". There are a large number of activities characterized as games but Wittgenstein argues that there is not a single, common feature for all of the games. In example; ball games such as tennis and

football have rules to follow, but there are no rules when a boy just throws a ball in the air. Some elements of the ball games, such as rules and competitiveness, remains and some fall off, such as hard physical work and the ball, when the thought goes to board games. The German philosopher Ludwig Wittgenstein proposed that complicated concepts cannot be defined in the traditional way by stating necessary and sufficient conditions. According to Wittgenstein; there might not be a single or a small number of features, which are common for all variants of a term and therefore it can't be defined in the traditional way. Wittgenstein argued that there are complex networks of overlapping similarities among the things that fall under a complex concept (Nyström, 2005 [69]). Based on Wittgenstein's family resemblance theory, Nyström (2005 [69]) proposed that partnering has some components and the importance of these components differs from case to case. Through literature review Nyström (2005 [69]) found that trust and mutual understanding are the two most important components of partnering and choosing partners, relationship building activities, openness, dispute resolution method, economic incentive contracts, continuous and structured meetings and facilitator, are the other components of partnering that have to be present to some extent.

Recently, Eriksson (2010 [70]) defined partnering as a cooperative governance form facilitated through various cooperative procurement procedures, of which all are not required for a partnering label based on the definitions of Nyström (2005 [69]).

Briefly, partnering can be defined as a new project procurement process depending on open books between participants and collaborative relations. Taking project partnering as a new way of project procurement system; client - contractor, contractor - subcontractor relations have been discussed in construction management literature for the last few decades.

On the other hand; partnering phenomenon has been discussed in international construction literature since IJVs have emerged in global market as an entry strategy to new markets. In this respect, ICJVs have been reviewed in construction management literature in order to set up the framework of this study.

2.4 Joint Ventures in International Construction

Construction firms enter new markets by establishing partnerships with local or foreign partners in order to reduce risks, achieve sustainable growth and competitiveness in global market. It is possible to share risks and rewards for the period of a project when participating in a JV. That's why; international contractors adopted JVs. The term "JV" has distinct meanings for researchers and practitioners in different industries. Ho et al. (2009 [77]) suggested that JVs sometimes refer to a very general form of alliance, and sometimes refer to a specific type of alliance concerning the formation of a new entity. General form of JVs is classified into "equity JVs" and "non-equity JVs". Equity JVs can be defined as an independent legal entity that is formed by at least two participants. Non-equity JVs can be defined as contractual arrangements, such as licensing, distribution, and management contracts (Hennart 1998 cited in Ho et al. 2009 [77]). Ho et al. (2009 [77]) supposed that although a new entity is not formed in a construction joint venture, a construction joint venture can be regarded as an "equity JV" due to its binding agreements including legal, financial and managerial aspects.

Construction firms participate in IJVs in order to share risks and rewards in either large-scale or international construction projects. The major construction projects in developing countries are often carried out in IJVs with construction companies from developed countries in order to improve quality (Chan and Tse 2003 [78]). Technical knowledge of these contractors and competitiveness in global market are the reasons of their entry into developing countries (The United Nations Centre for Corporations - UNCTD 1989 cited in Ofori 2003 [79]). Developing countries take IJVs into account as a unique way of meeting the competing interests of national development and the prevention of the domination of the economy by foreign investors (Sornarajah 1992 cited in Mohamed 2003 [11]).

Local partners usually seem to be the most appropriate partners in order to reduce the effects of host country related risk factors and gain competitive advantage in the host country (Bing et al. 1999 [6]; Chan and Tse 2003 [78]). On the other hand, in some of the countries construction firms have supposed to have a local partner due to legal restrictions. Sometimes, international contractors establish partnership with another foreign construction company in order to derive benefits from complementary

resources of the partners. As a result, international contractors work with firms from different nationalities when participating in an ICJV. Since, ICJVs involve multinational participants from different legal, political, economic and cultural backgrounds, cross cultural management in ICJV process is the main challenge of ICJVs. That's why; establishing partnerships and adopting company structures to work in multi-cultural environment are the main subjects of international construction (Ofori 2003 [79]).).

Research on international construction has focused on four main topics including; entry mode for international construction market, risk management in ICJVs, cultural considerations and cross-cultural management in ICJVs and performance of ICJVs. Rationales and benefits of ICJVs and trust in ICJVs are the other topics of the literature.

Badger and Mulligan (1995 [80]) have figured out the importance of considering the formation of international partnerships in construction industry due to globalization. According to Badger and Mulligan (1995 [80]), rationales of forming ICJVs should be considered in seven areas including; marketing, finance, operations, technical elements, management / personnel, labor, and government. Enhancing competitive advantage, increasing market share, obtaining new work, broadening client base, increasing cultural responsiveness, reducing risk, increasing profits, increasing labor productivity are some of the benefits that firms gain through the formation of ICJVs Badger and Mulligan (1995[80]).

International contractors gain competitive advantage and reputation in global market by participating in an ICJV. Within ICJVs, construction firms also share their responsibilities by functional separation and delegation of work (Girmscheid and Brockmann 2010 [81]). Reducing risk, improving quality, reducing costs, completion on time and reducing work at the project level were mentioned as the direct benefits of ICJVs (Cheng et al., 2004 cited in Ho et al., 2009 [77]). ICJVs have also been discussed as a foreign market entry type (Chen 2008 [82]; Gunhan 2005 [29]). As a form of strategic entry into new markets ICJVs allow firms to participate in overseas project with a partner for the period of the project.

Construction firms establishing in an ICJV are also trying to fulfill their expertise in financing, engineering, procurement, and construction by sharing resources of their partners. On the other hand, construction firms have participated in ICJVs to share the

risks related to the host country and conform to the host government policies as well as to enter new markets around the world. That's why; selection of the appropriate partner has direct effects on the performance of the ICJVs and on the firm's sustainable competitiveness in global market.

Despite the aforementioned benefits of ICJVs, formation and operation of ICJVs are risky due to host country related risk factors and partner related factors. ICJVs are complex to manage successfully due to diversification in the goals of partners and cultural distance in a foreign country that has specific economic, political and socio-economic risks. Consequently, understanding and considering the political, economic and socio-economic environment of a foreign country is essential for the performance of an ICJV. ICJVs are vulnerable to host country related risk factors. On the other hand, lack of technical expertise, poor access to local markets and an inability to adapt different styles of management within a foreign country, were the weaknesses which were diminished by joint venturing (Bing et al. 1999 [6]; Norwood and Mansfield 1999 [47]). Previous studies have mentioned that organizational learning and the acquisition of local knowledge between partners are the reasons of ICJV failures (Lee 2011 [83]).

There is a relationship between the process and the performance of ICJVs. Performance of ICJVs is one of the main topics of the construction management literature. Mohamed (2003 [11]) has developed a performance model for ICJVs. The developed model empirically examined the effects of key processes such as partner selection, venture formation, and operation on venture performance. The findings of this research proposed a sequential effect from partner selection through venture formation and operation and performance. The results of this research also showed that partner selection would influence the formation process which, in turn, would influence its operation and performance.

Ozorhon et al. (2010 [10]) have developed a performance model for ICJVs. The developed ICJV performance model has been defined by four-dimensional construct including; performance of the project, the IJV partners, the IJV organization itself, and the perceptions of the IJV partners. According to this model the determinants of IJV performance are; interpartner fit, interpartner relations, structural IJV characteristics, host country related factors, and project related factors. The developed model

proposed that partner related factors have direct effects on the success of the JV formation and the venture operation process (Ozorhon et al. 2010 [10]). That's why; selecting an appropriate partner becomes necessary for the success of venture formation and operation.

According to Bing et al. (1999[6]), there are three main phases of an ICJV process including; start-up, operation and dismantle. The start-up phase refers to initial contacts between partners, and the negotiation process as well as contract signing. The operation phase is the implementation process of construction. The dismantle phase is the period of construction work that has come to an end and the partners start negotiating the ending matters (Bing et al. 1999[6]). On the other hand; partner selection, ICJV formation and ICJV operation were determined as the key processes of an ICJV (Mohamed 2003 [11]).

In this study, the process of an ICJV is concerned in three phases including; partner selection, formation and operation. Considering the effects of partnering relations on the success and performance of ICJVs, the main aim of this study is to develop a partner selection model for international construction projects due to host country related risk factors.

CHAPTER 3

PARTNER SELECTION IN INTERNATIONAL CONSTRUCTION JOINT VENTURES

Partner fit and the selection of the appropriate partner has been mentioned as a performance criterion for IJVs. That's why; partner selection criteria and partner selection models have been discussed in management science literature. In order to clarify the factors that affect partner selection decisions for ICJVs, partner selection criteria and partner selection models are reviewed both in management science literature. On the other hand, this chapter also covers a literature review of partner selection in ICJVs, pointing out the gap of a partner selection model for ICJVs.

3.1 An Overview of Partner Selection in International Joint Ventures

Global firms from developed countries usually search new emerging markets to enter and establish partnerships with local firms in order to obtain knowledge of current local business practices and general knowledge of the local economy, politics and customs since they are unfamiliar with these institutional environments. In addition to this situation, local firms also help to improve a foreign firm's competitive position in the host country, and improve the profitability by mitigating operational risks. Due to the dynamic and complex environment of the emerging economies, local partner selection became an important issue for the sustainable profitability of firms (Wong and Ellis 2002 [84]; Luo 1997 [12]; Lu and Ma 2008 [13]). Firms gain advantage in downstream resources such as access to local markets and distribution channels, knowledge of local regulations and preferential access to the government by establishing partnership with a local partner (Meschi and Riccio 2008 [48]). Consequently, searching for a proper and a complementary partner becomes one of

the main challenges of a firm which is deciding to establish a partnership in a foreign country.

The attribute of the selected partner differs due to the type of the venture and the expectations of the firm. Beamish (1987 [49]) has figured out that; what you need a partner for, and for how long, will influence the success of the IJVs. The characteristic of the selected partner differs due to the expected performance of the venture. Organizations prefer to work with specific partners in high-performing ventures. On the other hand, in low- performing ventures organizations should prefer to work with any local partner (Beamish 1987 [49]). Briefly, international firms decide to work with partners whose resources meet the primary needs of the venture. Firms usually choose to work with a local partner who has close ties to the government, if it is necessary to establish close relations with government. On the other hand, firms choose to work with an experienced partner when the primary need of the venture is marketing or distribution (Davidson, 1982 cited in Geringer 1991 [22]). In this respect, Geringer (1991 [22]) hypothesized that there is a positive correlation between the potential critical success factors of the venture and the difficulty of internal development with the weighting of selection criteria associated with that factors.

Selection of the appropriate partner whom has complementary resources increases the performance and the success of the IJVs. Luo (1998 [85]) has figured out that the linkage between partner selection and IJV success lies in inter-partner fit. The term inter-partner fit has been created by Geringer (1991 [22]). According to Geringer (1991 [22]), partner fit depend on the strategic fit and cultural fit of partners as well as depend on the complementary resources of partners and sharing risks. Cultural differences and strategic fit between partners determine the level of learning and conflicts in IJVs which in turn affect the overall performance of IJVs (Pak et al. 2009 [56]).

Luo (1997 [12]) suggested that both strategic and organizational traits of local partners are significantly associated with several dimensions of IJV performance. In this regard, Luo (1997 [12]) proposed that partner selection criteria have also effects on several aspects of IJV performance such as financial return, local market expansion, export growth and risk reduction.

The choice of a particular partner has been determined as one of the most important key issues in the formation process of the IJVs, since it influences the IJVs ability to achieve its goals. Selection of the appropriate partner should lead a superior performance of IJV. However, selection of the inappropriate partner should cause many problems during the operation process of the IJVs such as conflicts in decision making, lack of complementarity, lack of mutual commitment and leakage of tacit knowledge (Larimo and Rumpunen 2007 [86]; Hennart and Zeng 2002 [87]; Chiao et al. 2009 [64]; Cullen et al. 2000 [18]; Kaufmann and O'Neil 2007 [65]; Chowdhury 1989 cited in Geringer 1991 [22]; Dacin et al. 1997 [88]).

Since, selecting the right partner is essential for the establishment of a successful venture and partner fit has direct effects on partnerships performance, partner selection criteria and partner selection models have been a research topic in international business literature. Some researchers have studied the importance of partner selection and partner selection criteria in IJVs (Wu et al. 2009 [89]; Holmberg and Cummings 2009 [63]; Larimo and Rumpunen 2007 [86]; Luo 1997 [12]; Luo 1998 [85]). On the other hand, Larimo and Rumpunen (2007 [86]) have mentioned that partner selection have received limited attention among researchers. The literature on partner selection can be categorized in three main research areas including; partner selection criteria, partner selection process, and partner selection models.

3.2 Partner Selection Criteria for International Joint Ventures

Partner selection is a strategic decision in the formation process of ventures. The criteria used by a firm in selecting a partner depend on a wide range of factors which are specific to the firms' strategy and needs (Wu et al. 2009 [89]). Benefits from a prospective partner's contributions might occur throughout the operation process of IJVs (Geringer 1991 [22]). The accretion of the benefits that firms should gain through establishing partnerships depends on selecting a partner who can supply the complementary skills or capabilities. On the other hand, effective communication and cultural fit between partners are the other important issues of successful IJVs.

Geringer (1991 [22]) has pointed out that researchers have not identified the criteria of a "proper", "right" or "complementary" partner even though they have mentioned the

importance of selection of the "proper", "right" or "complementary" partner. Geringer (1991 [22]) defined the determinants of partner selection criteria in IJVs. Task-related and partner-related criteria have been distinguished as the main attributes of partner selection process. Following studies make their contributions with respect to this classification. Geringer (1991 [22]) argued that relative importance of partner selection criteria is related to the critical success factors of an IJVs competitive environment, and to static and dynamic dimensions of the parent firm's position vis-à-vis these factors. That's why; firms seeking a complementary IJV partner should establish exactly the specific task-related skills and resources that they want to obtain from a partner as well as the relative priority of the specified skills and resources. Task related criteria are associated with the operational skills and the resources which a venture requires for its competitiveness in the related country. Partner related criteria are associated with the efficiency and effectiveness of partner's cooperation. Partner-related criteria refer to the variables which become relevant only if the chosen investment mode involves the presence of multiple partners. However, task-related criteria refer to the variables which are related to the applicability of a proposed venture's operations regardless of whether the chosen investment involves multiple partners (Geringer 1991 [22]).

According to Geringer (1991 [22]), the weighing of selection criteria should reflect the perceived importance to the firm of various contributions a partner can make toward improving competitive position and developing sustainable competitive advantage. That's why; categorizing the critical success factors of the proposed venture have major effects on determining the relative importance of partner selection criteria (Geringer 1991 [22]). The study by Geringer (1991 [22]) determined the correlations between task-related partner selection criteria and competitive environment of IJVs as well as the difficulty of internal development and critical success factor variable. Within the context of this research, critical success factor and the difficulty of internal development were found to be valuable in determining the relative importance attributed to partner selection criteria. In the study by Geringer (1991 [22]); regulation, financing, government subsidy, management, employees, site, low costs, patent, trademark, rapid entry, full line, government sale, local identity, marketing and service have been assessed as the task-related criteria.

Figuring out the importance of selection of a partner in developing countries, Luo (1997 [12]) suggested that strategic and organizational traits of local partners have direct effects on the performance of IJVs. In this study, absorptive capacity, product relatedness and market power of partners were mentioned as the sub-criteria of strategic traits. International experience and organizational collaboration were mentioned as the sub-criteria of organizational traits. Organizational collaboration of the partner has direct effects on uncertainty reduction and the profitability of the IJV. International experience of partners has effects on risk reduction of IJVs and previous relations with partners has effects on overall performance of IJVs including; risk reduction, profitability of IJVs and export sales are some of the findings of this study.

Luo (1998 [85]) has mentioned that researchers have paid little attention on developing a systematic categorization of various partner attributes. In order to develop a systematic categorization of various partner attributes, Luo (1998 [85]) proposed that the fit of partners can be classified in three groups including strategic fit, organizational fit and financial fit of partners. Operation-related attributes are associated with the strategic fit of partners including; marketing competence, relationship building, market position, industrial experience, strategic orientation, and corporate image of the potential partners. Cooperation-related attributes are associated with organizational fit of partners including; organizational leader, organizational rank, owner type, learning ability, foreign experience, and human resource skills of the potential partners. Cash flow-related criteria are associated with the financial fit of partners including; profitability, liquidity, leverage, and asset management of the potential partners. Strategic fit between partners has effects on operational skills and resources needed for the JVs competitive success. However, organizational fit between partners has effects on the efficiency and effectiveness of inter-firm cooperation. Financial fit of partners has effects on the optimization of capital structure and cash flow (Luo 1998 [85]).

Strategic fit between partners depend on resource complementarity and absorptive capacity of partners. In other words, strategic fit is associated with understanding each parent's resources and strategic goals clearly. It is important to be aware of your firm's resources and strategy as well as know the resources and strategies of the potential

partners to establish a successful IJV. The strategies and the expected benefits from ventures are different for each parent. Consequently, partner selection criteria are different for local and foreign parents. The differences of motivations of IJVs for local and foreign parents have been searched by some researchers. Tatoglu and Glaister (2000 [90]) investigated the strategic motives for IJV formation from the competitive perspective of foreign and local partners. Findings of this research posit that Western firms engaged in IJVs with Turkish firms in order to gain faster access to the Turkish market and reduce risks. However, Turkish firms engaged in IJVs with Western firms in order to transfer of technology and gain competitive advantage due to high technology. Hitt et al. (2000 [42]) posit that there are differences of partner selection priorities between emerging and developed market firms. Market access, local knowledge and unique competencies are the partner selection criteria which are concerned by executives from developed countries. However, financial, technical, and managerial capabilities are the partner selection criteria which are concerned by executives from emerging countries. Firms from emerging markets and developed markets both focus on the complementary skills of the potential partners. Over the following years, Hitt et al. (2004 [91]) searched the differences of partner selection criteria for emerging market firms due to the institutional environments in which they must operate. Findings of this study supported that there are some differences in partner selection criteria used by Chinese and Russian managers. Trustworthy, good reputation and previous relations with potential partners are the prior partner selection criteria for Chinese managers who focus on the long term business development. However, Russian managers seeking for short-term business development focus on survival and minimizing near-term uncertainty. Complementary skills of the partner and easy access to the market are the similar partner selection criteria which are important both for Chinese and Russian managers (Hitt et al. 2004 [91]). Glaister et al. (2005 [92]) discussed the motivations for IJV formation both for UK and European firms in order to find out the differences of task-related partner selection criteria for UK and European partners. Within the context of this research, access to technology has been determined as the prior task-related partner selection criteria for UK firms, while access to links with major buyers has been determined as the prior task-related partner selection criteria European partners.

Trust, strategic and cultural fit between partners has been mentioned as the most important issues for the success of IJVs (Pak et al. 2009 [56]; Bierly and Callagher 2007 [93]; Larimo and Rumpunen 2007 [86]; Luo 1998 [85]; Luo 1997 [12]). Pak et al. (2009) found out that strategic fit and cultural fit between partners had a positive effect on cross-border learning as well as on the performance of IJVs. Bierly and Callagher (2007 [93]) have proposed that strategic fit, uncertainty, trust (individual level and firm level), strategic expediency and external time constraints are the main determinants of partner selection.

Larimo and Rumpunen (2007 [86]) classified the variables influencing the partner selection criteria in three groups including; foreign partner specific variables, IJV location specific variables and investment specific variables. Findings of this study proposed that IJV location specific variables and investment specific variables had significant effects on the relative importance of the partner selection criteria, while foreign partner specific variables had limited effect on the relative importance of the partner selection criteria. The geographical location of the IJV, economic development of the host country and the cultural distance between partners are the attributes of IJV location specific variables influencing the relative importance of the partner selection criteria (Larimo and Rumpunen 2007 [86]). The study of Larimo and Rumpunen (2007 [86]) suggested that there is a relation between the host country environment (IJV location-specific variables) and the partner selection criteria. Recently, Roy and Oliver (2009 [26]) investigated the influence of host country's legal environment on the partner selection criteria and developed a conceptual partner selection model. Thorough literature review, this study proposed that partner selection and the host country legal environment has direct effects on the performance of IJVs. Roy and Oliver (2009 [26]) also defined that the institutional environment of host country; rule of law and control of corruption appears to be particularly important factors that has effects on the formation and operation of IJVs. Findings of this research suggested that the legal aspect of the institutional environment of the IJVs host country is an important factor in determining partner selection (Roy and Oliver 2009 [26]).

Since partner selection concerned with the complementary skills and resources that have effects on the operation process of an IJV and its vulnerability to host country

related risk factors, this study proposed that partner selection criteria differs due to the environmental attributes of the host country including the level of economic development, political and socio-economic situation. Consequently, country risk indicators are concerned as one of the partner selection parameters in this study. In this respect, the factors of partner selection decision are classified into three main groups including; host country related factors (country risk indicators), industry related risk factors and project related risk factors.

3.2.1 Task Related Criteria

According to Geringer (1991 [22]); the operational skills and resources of the partners can be defined as task related criteria. Task related criteria depend on the variables including; patents, technical knowledge, experience of management, access to marketing and distributions systems, financial resources that a venture requires for its competitive success (Geringer 1991 [22]). Task related criteria are associated with the key resources of that partners can provide to a venture. In literature, it has been argued that relative importance of task-related partner selection criteria should be determined by the strategic context of and the critical success factors of the IJV with regard to the firm's competitive position (Harvey and Lusch 1995 [52]). In this respect, the relation between task-related selection criteria and resource dependence theory has been mentioned by researchers (Hitt et al. 2000 [42]; Glaister et al. 2005 [92]).

Firms must identify the critical complementary resources that they need for the operation of the ventures, in order to gain value through partnerships. Thorough literature review, Roy and Oliver (2009 [26]) identified the task-related selection criteria as follows;

- The ability to satisfy host government requirements (e.g., for investment, subsidy, credit, or tax avoidance)
- Connections to government or non-government organizations (e.g., other firms, trade organizations)
- Regulatory permits, licenses, or patents.
- Facilities (e.g., location and quality of production, R&D or office

facilities).

- Managerial and/or labor (e.g., technical, service) skills.
- Raw materials / natural resources, products, services, and/or technology (e.g., quality, cost, diversity).

3.2.2 Partner Related Criteria

According to Geringer (1991 [22]); the efficiency and the effectiveness of partner cooperation can be defined as partner related criteria. Partner related criteria depend on the variables including; character, culture and history of the partners (Geringer 1991 [22]) which are associated with the business know-how, business compatibility between partners, experience in global market and prior relations with partners. Positive effects of past association between partners, corporate cultural similarity and mutual respect have been mentioned by researchers (Spekman et al. 1996 cited in Glaister et al. 2005 [92]). Partner related criteria become relevant only if the chosen investment mode involves the presence of multiple partners (Geringer 1991 [22]; Glaister et al. 2005 [92]). Roy and Oliver (2009 [26]) stated that firms are more likely to choose partners based on partner-related criteria when communication and the equity share of economic returns of the IJV are necessary. Potential opportunism and increased costs were determined as the main causes of this situation. Thorough literature review, Roy and Oliver (2009 [26]) identified the partner-related selection criteria as follows;

- Transparency of the firm and/or ethical values/beliefs;
- Reputation;
- Goals, objectives, aspirations, or synergy potential;
- Commitment, seriousness and/or enthusiasm for the partnership;
- Favorable past association with the focal firm or mutual acquaintances;
- Successful partnering record with other firms;
- Firm size;
- Market share or industry position;

- Financial capabilities (assets, ability to raise financing); and
- Trustworthiness.

3.3 Partner Selection Models for International Joint Ventures

Partner selection has been discussed by many researchers and the findings of these prior studies indicated that partner selection is an important variable effecting IJV operations. Since the selected partner should influence the overall performance of IJVs, it is critical to understand the process of partner selection and the variables affecting this process for firms which is deciding to establish an IJV. Determining the positive effects of the appropriate partner on the overall performance of IJVs, partner selection criteria and partner selection process have been discussed by many researchers. Partner selection literature generally focus on two main issues including; identification of partner selection criteria and partner selection models. However, partner selection models have received limited attention.

Harvey and Lusch (1995 [52]) developed a three step decision making process in order to help maximising the success in partner selection. The researchers proposed that a partner had to be assessed in the context of their macro-environment, e.g. the competitive advantage of nations, as well as its industry structure, and the unique characteristic of the company that represent its distinctive competence. The study by Harvey and Lusch (1995 [52]) assumed that by undertaking such a comprehensive, systematic assessment process "better" IJV partners will be selected. The evolutionary nature of the assessment process which was developed by Harvey and Lusch (1995 [52]) is illustrated in Figure 3.1. Harvey and Lusch (1995 [52]) also argued that the relative importance of task-related partner selection criteria differs due to the strategy and the needs of the parent firm. Critical success factors of IJV performance is associated with the relative importance of partner selection criteria. The macro-environmental level is the first step of partner selection process that should examine the competitive viability of a potential partner's macro economy, legal structure and, to some extent the cultural dimensions of the country. The second level of the partner selection process reefers to the evaluation of the key-macro characteristics of the

competitive advantage of nations and their general business according to the developed model.

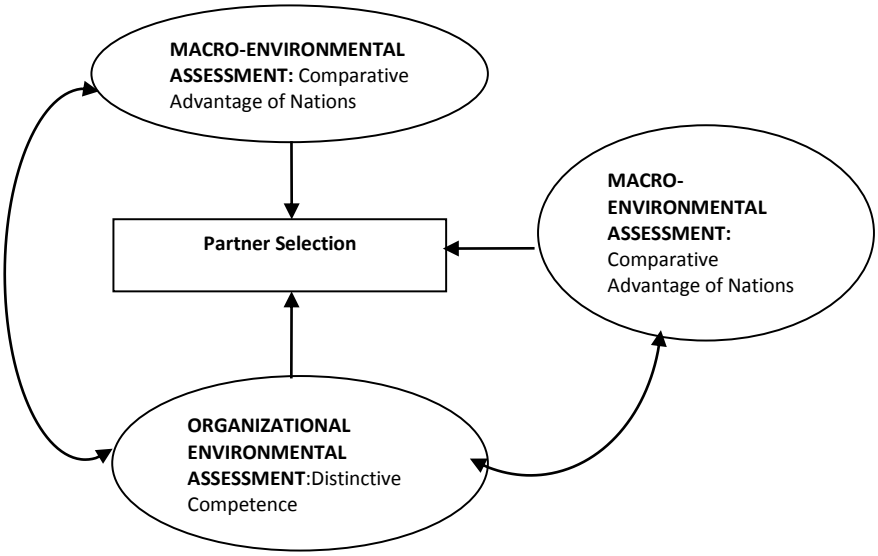


Figure 3.1 Framework of Interactive Assessment Process in Selecting IJV Partners (Developed by Harvey and Lusch 1995 [52])

This assessment generally highlights the competitive strengths of potential partners in their industry. The third level of this partner selection process is associated to the environment of the individual organizations being considered as potential partners (Harvey and Lusch 1995 [52]).

Al-Khalifa and Peterson (1999 [94]) mentioned the increasing range of poor performance of IJVs throughout the 1990's, and proposed that cultural differences and selection of the inappropriate partner are the two main factors of IJV failures due to literature review. Al-Khalifa and Peterson (1999 [94]) discussed that the ranking of the various criteria for the selection of IJV partners is not only based on the strategic goals of the proposed venture and of the parent firm, but on the corporate personalities of the partners. The study by Al-Khalifa and Peterson (1999 [94]) proposed that it is important to distinguish between task related factors and partner related factors in analyzing the partner selection process. According to Al-Khalifa and Peterson (1999 [94]), partner selection criteria are related to the particular characteristic and experience both of the firm itself and of its top decision makers. Within the context of

this study, a survey was conducted with the respondents whom were participating in IJVs in Bahrain. Reputation in Bahrain market, financial status, similar goals, enthusiasm and commitment to product and contacts in Bahrain market were found as the most important task-related selection criteria for an IJV in Bahrain due to the results of this study. The main finding of this study is that the critical factors in IJV partner selection criteria are related to the reputation, experience and personal knowledge of the partner organizations as well as to some of the personal characteristics of their Chief Executive Officer.

Recently, Holmberg and Cummings (2009 [63]) defined partner selection as a core element in building successful partnerships. Partner selection process which was developed by Holmberg and Cummings (2009 [63]) is illustrated in Figure 3.2.

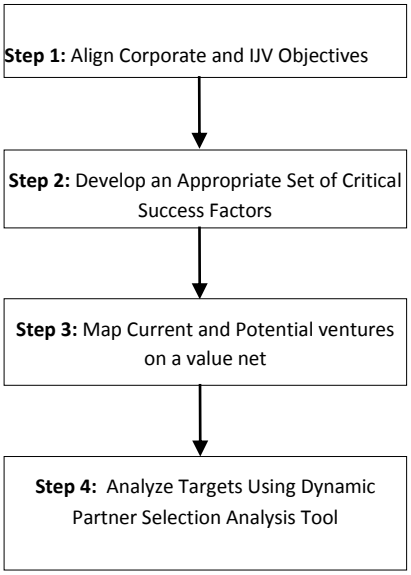


Figure 3.2 A Strategic Management Based IJV Partner Selection Process (Developed by Holmberg and Cummings 2006 [63])

Holmberg and Cummings (2009 [63]) developed a four staged strategic management based partner selection process including; aligning corporate and IJV objectives, developing an appropriate set of critical success factors, mapping current and potential ventures on a value net, and analyzing targets using dynamic partner selection tool.

Within the context of the study by Holmberg and Cummings (2009 [63]), the developed partner selection process applied to travel industry. According to Holmberg and

Cummings (2009 [63]); this partner selection process can be applied to other industries. On the other hand, Holmberg and Cummings (2009 [63]) suggested that the political, social and cultural aspects of the host country should be examined.

Hajidimitriou and Georgiou (2002 [95]) have suggested a goal programming model for IJVs. The developed model was concerned about examining the strengths and weaknesses of the potential local partners in order to select the appropriate partner that would better serve the strategic objectives of the IJV. The model supposed that the profitability of the IJV depends on the partner selected. The proposed partner selection model for IJVs depended on 12 selection criteria including the goals of a firm which is deciding to establish a partnership. These criteria were; rapid market entry, compatible management styles, political advantage, compatible strategic objectives, distribution network quality, willingness to share expertise, compatible organization cultures, better export opportunities, technological level, quality of local personnel, knowledge of local business practices and location of JV facilities. The developed model allows testing numerous scenarios regarding various strategic assumptions by altering its parameters and priority rankings.

Chen et al. (2008 [21]) developed a partner selection model for strategic alliances by applying ANP approach. The determinants of the proposed model are the motivations for alliances, partner selection criteria and the attributes of the partners. Motivations for alliances were classified in four groups including; strategy oriented, cost oriented, resource oriented and learning oriented. Partner selection criteria were considered in corporation compatibility, technology capability, resource for R&D, and financial condition of the partners. The attributes of each selection criteria also defined in order to evaluate the suitability of the potential partners. Corporation compatibility of the partners is defined in compatibility of corporation strategies (CCS), symmetry of scale and scope (SSS), past cooperation experience (PCE), management and organizational culture (MOC), mutual trust and commitment (MTC). Technology capability of the partners concerns the capability of manufacturing technology (CMT), the product development and improvement (PDI), the capability of innovation and invention (CII), and the possible extent of skill application (ESC). Resources of partners for R&D concerns measuring the intensity of investment in R&D (IRD), the extent of

complementary resources such as equipment or experience for R&D (ECR), number of personnel in R&D (NUP), and quality of personnel in R&D (QUP). Financial condition of the partners concerns the return of investment in recent five years (ROI), debt ratio and refund ability (DRR), profitability in the future (PRF), and potential for growth (POG). Chen et al. (2008 [21]) stated that the content of motivations and criteria may vary due to the different kinds of partnerships or situations. Chen et al. (2008 [21]) also suggested that the external factors affecting the partner selection process should be taken into account in a further study. The developed partner selection model for strategic alliances by applying ANP approach is presented in Figure 3.3.

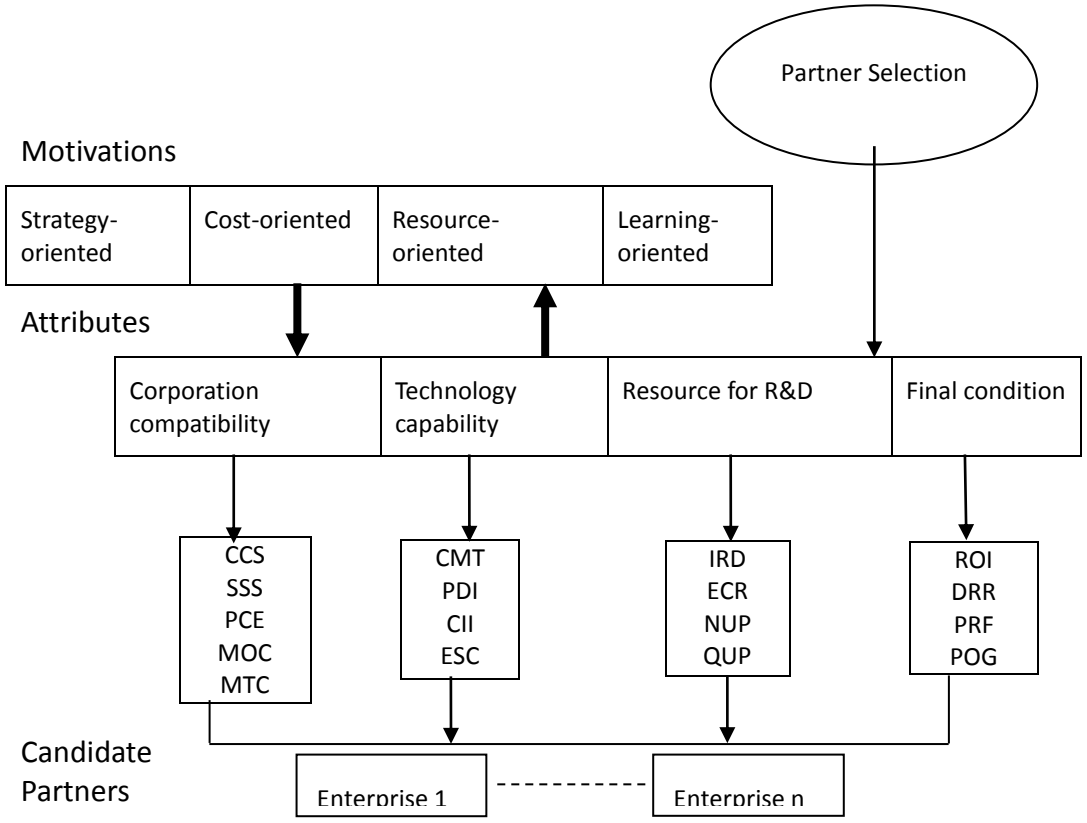


Figure 3.3 The Framework of relationship between motivations, criteria, and attributes in the selection Problem (Chen et al. 2008 [21])

Wu et al. (2009 [89]) developed an analytical network process in order to define the partner selection for strategic alliances in LCD industry producing monitors for computers, either notebook or desktop. Characteristic of partner, degree of fitness,

intangible assets, marketing knowledge capability and complementary capabilities were determined as the main parameters of this selection process. The conceptual framework of the study by Wu et al. (2009 [89]) is presented in Figure 3.4. According to the results of this study; complementary capabilities were found to be the highest importance among others.

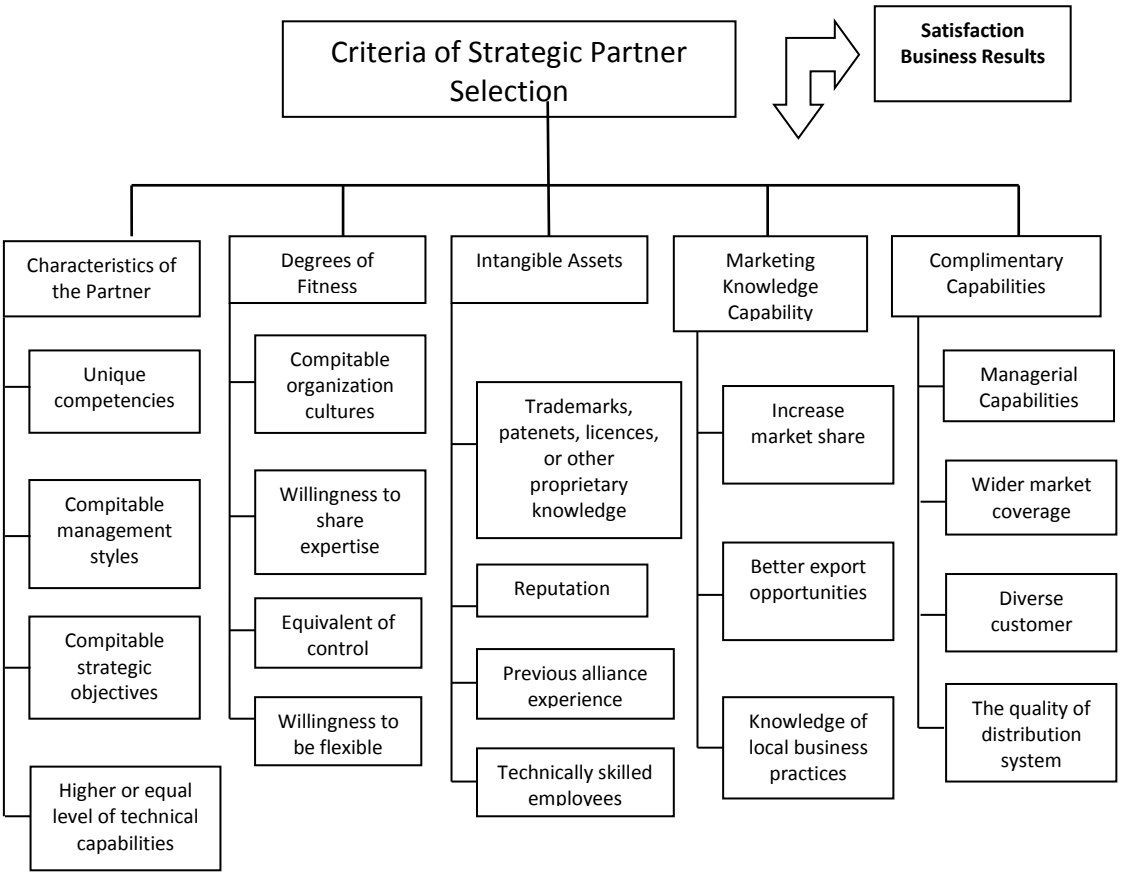


Figure 3.4 The Conceptual Model of Partner Selection for Strategic Alliances (Developed by Wu et al. 2009 [89])

Some researchers have pointed out the importance of external factors on partner selection decision in IJVs (Larimo and Rumpunen 2007 [86]; Chen et al. 2008 [21]; Harvey and Lusch 1995 [52]). However, a partner selection model which is considering the external factors has not been developed. Recently, Roy and Oliver (2009 [26]) investigated the influence of host country's legal environment on the partner selection criteria and the overall performance of IJVs. The study by Roy and Oliver (2009 [26]) suggested that the institutional environment of host country; rule of law and control of

corruption appears to be particularly important factors that has effects on the formation and operation of IJVs. Within the context of this study, a conceptual partner selection model has been developed. Findings of this research suggested that the legal aspect of the institutional environment of the IJVs host country is an important factor in determining partner selection (Roy and Oliver 2009 [26]). On the other hand, Roy and Oliver (2009 [26]) posit that the influence of other host country institutional pressures on IJV partner selection such as political stability should be examined.

3.4 Partner Selection in International Construction Joint Ventures

Construction firms have participated in ICJVs to enter new markets around the world as well as share risks related to the host country and conform to the host government policies. Understanding and considering the political environment of a foreign country is essential for the performance of an international venture. Local partners provide knowledge of local contracting procedures and policies, language requirements, governmental regulations and local customs (Badger and Mulligan 1995 [80]). Consequently, international contractors evolve collaborative relations with local partners. On the other hand, international contractors also evolve collaborative relations with another foreign partner in lieu of a local partner due to complementary resources of the partners, especially technological resources.

The effects of partner fit on the performance of ICJVs also have been discussed in construction management literature (Ozorhon et al. 2010 [10]; Mohamed 2003 [11]; Luo 1997 [12]). Since, ICJV process can be classified into three phases; partner selection, ICJV formation and ICJV operation, selecting an appropriate partner has direct and indirect effects on the success of the ICJV process.

The importance of selecting an ICJVs partner that is credit-worthy and financially strong, and also that has a strong relationship with the host government in order to reduce the existing risks in developing countries has been mentioned by researchers (Bing and Tiong 1999 [6]; Mohamed 2003 [11]). Although selection of the appropriate partner has been mentioned as a performance criterion for ICJVs, a model for selecting a partner for ICJVs has not developed.

On the other hand, the difficulties of choosing a partner due to unstable economic, political and social environment of developing countries were mentioned before by researchers (Friedmann and Beguin 1971 cited in Beamish 1987 [49]). The selected partner has effects on the overall performance of IJVs as well as its vulnerability to exogenous factors. The exogenous factors are the host country related risk factors including economic risks, political risks and socio-cultural risks. Since, one of the main motivations of establishing ICJVs is to reduce the risks; host country related risk factors should be concerned in a partner selection model. Project related risk factors and industry related risk factors are the common risk factors both for domestic and international construction. That's why; host country related risk factors, industry related risk factors and project related risk factors are considered as the main parameters of partner selection for ICJVs.

Determining out the parameters of partner selection for ICJVs, a partner selection model for international construction projects due to host country related risk factors is developed by applying ANP approach. Within the context of this study; host country related risk factors are investigated in three topics; economic risks, political risks and socio-cultural risks. Host country related risk factors are determined thorough literature review. The effects of host country related factors on ICJVs are discussed in Chapter4.

CHAPTER 4

HOST COUNTRY RELATED RISK FACTORS IN INTERNATIONAL CONSTRUCTION JOINT VENTURES

After reviewing the partnering and partner selection phenomenon, the aspects of the proposed model are determined thorough literature review in chapter 4. Country risk ratings and the reasons of the usefulness of these ratings for international construction is also explained. Taking host country related risk factors as a determinant of partner selection model; the term “country risk” is reviewed in management science literature. International risk assessment models and the effects of these risks are also reviewed in detail in construction management literature. Finally, the common risk factors are determined as partner selection criteria for the proposed model.

4.1 Definition of Country Risk

Country risk has become a research topic in international business over the last two decades and a major concern for the international financial community due to the increasing incidence of debt rescheduling in the early 1980s in developing countries (Cosset and Roy 1991 cited in Hoti and McAleer 2004 [96]). It has been mentioned by researchers that; fiscal management, entry decisions into a specified country, selection of the entry mode, the project, and the appropriate partner are affected by the policy of the host government, macroeconomic conditions such as exchange rate, inflation, tax regimes and legal environment of the host country in international business management literature (Roy and Oliver 2009 [26]; Desbordes 2007 [97]; Berry 2006 [98]; Lopez-Duarte and Vidal-Suarez 2010 [99]).

Country risk can be defined as the risk that economic, social and political events in a country would adversely affect the financial profits of a company (Vij 2005 [23]).

According to Nielsen (2007 [100]) country risk involves public institutions and policies created by governments as a framework for economic, legal and social relations. Environmental uncertainty becomes apparent due to the probability of host country related risk factors. Country related political, social and economic risk factors are the main determinants of country risk. Country risk originates from unpredictable government policies, the strength of country's legal system, force majeure and economic risks such as inflation, exchange rate and etc. Briefly, country risk can be defined as the result of political, social and economic factors of the host country (Oetzel et al. 2001 [101]). Political, economic and social risks also have effects on each other. On the other hand, country risk is often identified with sovereign risk. Sovereign risk is associated with problems in a country's balance of payments (Schroder 2008 [102]). Sovereign risk emerges when a sovereign government repudiates its overseas obligations, and when it avoids corporations and/or individuals from fulfilling such obligations due to economic, financial or political reasons (Ghose 1988 cited in Hoti and McAleer 2004 [96]; Haque 2008 [103]; Hoti 2005 [104]; Hoti and McAleer 2008 [105]). Sovereign risk also emerges even though the host country is in a financial position to meet its obligations and where countries encountering genuine difficulties in meeting their obligations (Hoti and McAleer 2004 [96]). In this respect, country risk refers to the likelihood that a sovereign government fails to meet its obligations towards foreign lenders or investors (Hoti 2005 [104]).

Global firms usually enter new markets in less developed countries in order to gain competitive advantage and tend to have lower ownership level in these countries that have much political and economic unrest (Shan 1991 cited in Reus and Ritchie 2004 [19]). Consequently, global firms used to participate in an IJV in order to reduce the political and economic risks of the host country. On the other hand, in some of the countries firms have supposed to have a local partner due to legal restrictions.

Lopez-Duarte and Vidal-Suarez (2010 [99]) analyzed the effects of political risk, cultural distance and language diversity on the entry mode decisions of global firms. The results of the study suggested in the existence of high political risk and cultural diversity, foreign direct investments should prefer JVs instead of wholly owned subsidiaries (WOS). The study by Lopez-Duarte and Vidal-Suarez (2010 [99]) also

posited that the preference of JVs over WOS takes place due to language proximity. It is not an effective way to reduce external uncertainty establishing a venture with a partner when language diversity between partners exists. Because, there will be problems in managing process of IJVs due to lack of effective communication. Feinberg and Gupta (2009 [106]) discussed how multinational cooperation (MNC) deals with country risk after they have established majority or wholly owned operations in a high-risk country. The study by Feinberg and Gupta (2009 [106]) posited that; operational integration help a MNC to deal with political risks related to the host country.

Meschi and Riccio (2008 [48]) proposed that country risk and cultural distance have effects on the probability of IJV survival. The study by Meschi and Riccio (2008 [48]) proposed that the probability of IJV survival is lower due to the higher country risk and larger cultural distance. Negative impacts of cultural distance on IJVs and international strategic alliances performance have been mentioned in international business literature (Lopez-Duarte and Vidal-Suarez 2010 [99]; Nielsen 2007 [100]; Meschi and Riccio 2008 [48]). Nielsen (2007 [100]) proposed that country risks have negative effects on the formation process of international strategic alliances as well as on the financial performance of international strategic alliances.

Government default on payments, a devaluation of the local currency and an increase in interest rates may cause uncertainties in macroeconomic environment. The aforementioned economic risks have negative effects on the financial performance of IJVs operating in the emerging market. Government and political instability, corruption in the host country, and restrictions on repatriation of profits may cause uncertainties in political environment. There are changes in profits, objectives and bargaining power of local and foreign partners due to the political and economic risks. These unanticipated uncertainties may cause a renegotiation of the initial IJV agreement. Sometimes, renegotiation is difficult due to lack of effective communication and cultural differences between partners and the survival of the IJV can't be possible (Hennart and Zeng [87]. On the other hand, opportunistic behavior between partners increases due to uncertainties and lack of legal ordering (Williamson 1985 cited in Nielsen 2007 [100]; Luo 1997 [12]; Roy and Oliver 2009 [26]).

Many researchers have pointed out the negative effect of the failure in assessing

political, economic, cultural, and legal environment of a project on the profitability of the firms in a foreign market and the importance of host country related factors on partner selection decision in IJVs (Roy and Oliver 2009 [26]; Isik et al. 2010 [27]; Larimo and Rumpunen 2007 [86]; Chen et al. 2008 [21]; Harvey and Lusch 1995 [52]). However, a partner selection model which is considering the host country related risk factors has not been developed. Recently, Roy and Oliver (2009 [26]) developed a conceptual partner selection model considering the influence of host country's legal environment on the partner selection criteria and the overall performance of IJVs. Roy and Oliver (2009 [26]) also posit that; the influence of other host country related risk factors on IJV partner selection should be a concerned in future studies.

On the other hand; host country related risk factors have been mentioned as a determinant of IJV formation and entry mode selection (Mesci and Riccio 2008 [48]; Nielsen 2007 [100]; Lopez-Duarte and Vidal-Suarez 2010 [99]). Since, host country related risk factors have effects on the success of IJVs as well as partner relations; companies should take host country related risk factors into account during the formation and operation process of IJVs. In this respect, this study hypothesizes that host country related risk factors should be determined as the main selection criteria in a partner selection decision model for IJVs.

4.2 Country Risk Ratings

The primary function of country risk ratings is to concern the possibility of debt repudiation, default or delays in payment by sovereign government or borrowers (Burton and Inoue, 1985 cited in Hoti and McAleer 2004 [96]). Country risk rating agencies evaluate host country related economic, financial, and political risk factors and their interactions in order to state the risks of a particular country. Assessing host country related risk factors are vital since, they have effects on the supply and cost of international capital flows (Brewer and Rivoli 1990 cited in Hoti and McAleer 2004 [96]). Standart and Poor's, Economist Intelligence Unit, Euromoney, Institutional Investor, International Country Risk Guide, Moody's, and Political Risk Services are the country risk rating agencies.

Institutional Investor country risk assessment which is known as the banker's judgment is published twice a year. ***Euromoney*** provides country risk ratings for 185 sovereign countries based on nine parameters including; political risk, economic performance, debt indicators, debt in default or rescheduled, credit ratings, access to bank finance, access to short term finance, access to capital markets, and discount on forfeiting. ***Standard and Poor's*** provides the credit ratings of sovereign issuers in 77 countries based on seven parameters including; long term debt, commercial paper, preferred stock, certificates of deposit, money market funds, mutual bond funds, and the claims-paying ability of insurance companies. Briefly, S&P's provides short- and long-term ratings, as well as a qualitative outlook on the sovereign's domestic and foreign currency reserves. Credit risk refers to the willingness of a government to service its debt obligations and the government's ability to service its debt obligations. ***Moody's*** provides sovereign credit risk analysis for more than 100 countries. Moody's publishes several different types of ratings to capture divergent risks, including country ratings for both short- and long-term foreign currency securities for each country. Political and economic risks of the countries concerned in Moody's in order to derive country risk ratings, which act as sovereign ceilings on ratings of foreign currency securities of any entity that falls under the political control of a sovereign state. ***Political Risk Services (PRS)*** provides analysis of potential economic, financial and political risks to business investments and trade for 100 countries, which assesses different political scenarios. According to PRS political risk defined in three levels namely; banking and lending, foreign direct investment, and exports to the host country market. ***Economist Intelligence Unit (EIU)*** provides country risk reports by summarizing the risk ratings for all 100 key emerging and highly indebted countries that are monitored by the Country Risk Service (CRS). ***Country Risk Service (CRS)*** provides country risk ratings by examining two types of risk including; country risk and specific investment risk. Country risk has been determined by political risk, economic policy, economic structure and liquidity factors. Currency risk, sovereign debt risk, and banking sector risk are concerned in specific investment risk (Hoti and McALeer [96] 2004).

These risk rating agencies provide a composite risk rating including alternative measures of economic, political and financial risk ratings of countries. The country risk ratings contain both qualitative and quantitative data. Country risk ratings are unreliable predictors of future volatility even though the analyses can be defined as a significance of a well-established field within international business (Oetzel et al. 2001 [101]). Country risk ratings can be used in determining the volatility and downside risk in international business due to the reliability of the ratings. Since the measures of these ratings are unreliable in predicting future volatility, international executives can't make decisions in order to minimize downside risk due to the measures of these ratings while entering a new market. On the other hand it is impossible to use the results of these country risk rating agencies in international construction industry. That's why; it is vital to determine the risks related to the host country that effect the construction industry.

4.3 Review of Host Country Related Risk Factors in Construction Management Science

The effects of host country related risk factors on ICJVs have been discussed by researchers. International construction risk assessment models, go/no go decision models, entry decision models in international construction market, and the effects of host country related risk factors on the performance of ICJVS are the main topics of ICJV literature.

Hastak and Shaked (2000 [2]) have developed a risk assessment model for international construction. According to this model there are three levels of risk including; macro (or country) level, market level and project level. In this risk assessment model host country related risk factors are defined as the macro risk. The macro (country) level defines the general risk which international contractors face while expanding operations in a specific country. The market level risk defines the risk associated with a specific international construction market. The market level risk also includes the impact of the macro level risk on the construction market. The project level defines the risk associated with a specific project in a specific country, which includes the impact of the macro and market levels on the project. The model is based on the analytical

hierarchy process. The framework of the study is as shown in Figure 4.1. Hastak and Shaked (2000 [2]) proposed that this risk assessment model can be used as a tool to quantify the risk involved in an international construction project in a specific country. This model provides four main results including; high risks indicators, impact of country environment on a specific project, impact of market environment on a specific project and overall project risk. Hastak and Shaked (2000 [2]) proposed that the developed model allows the decision maker to evaluate the potential risk at the macro, market and construction project levels by using available information, knowledge, and expertise.

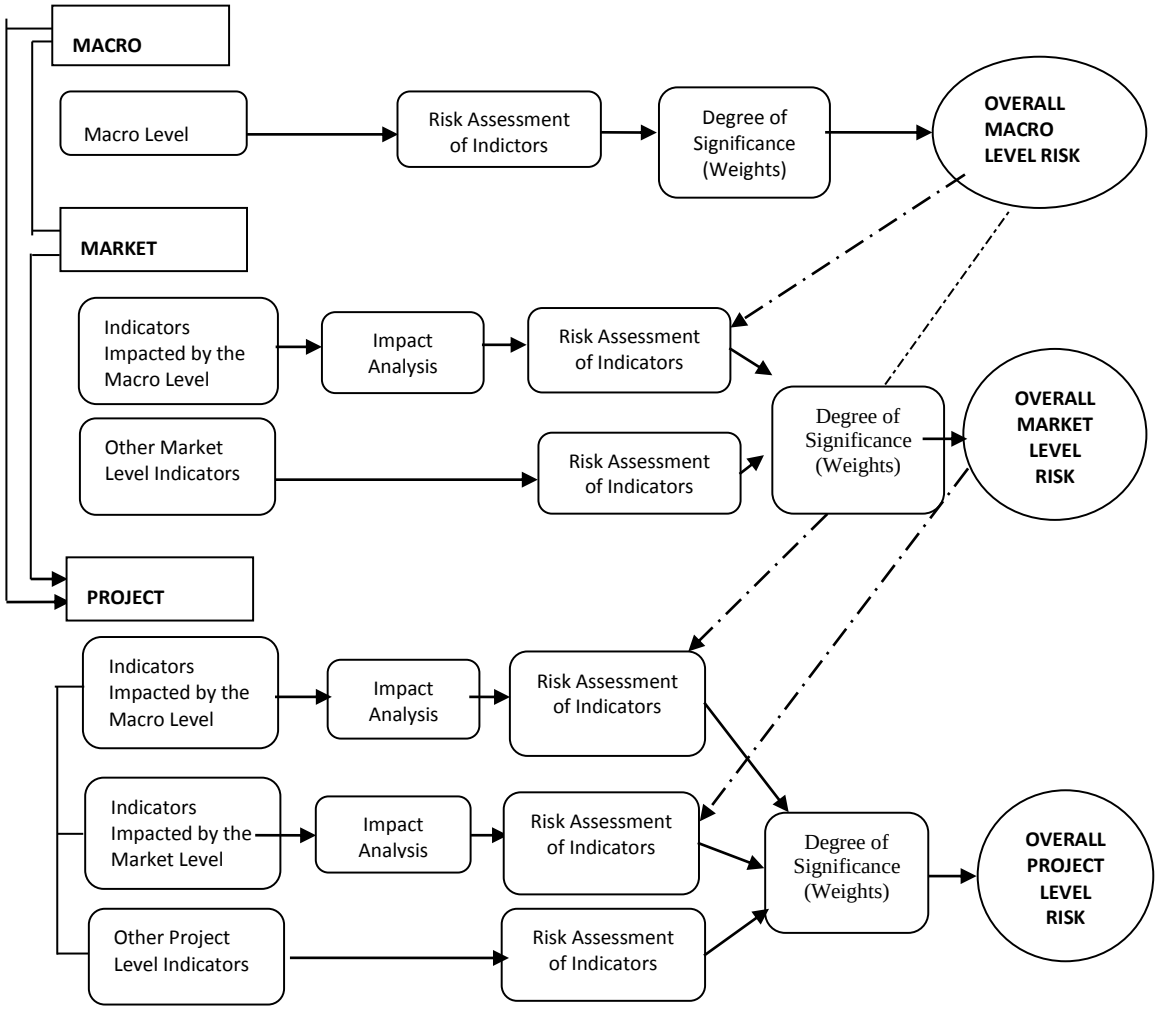


Figure 4.1 Framework of ICRAM Developed by Hastak and Shaked (2000 [2])

Country level risks were found to have almost highest risk, market level risks were found to have moderate high risk, and project level risks were found to have moderate risk due to the results of the study by Hastak and Shaked (2000 [2]). Political continuity,

enforceability of contracts, monetary inflation, economic growth, administration Bureaucratic delays, communication and transportation, professional services other than construction, dependence on or importance of major power, fragmented political structure, fractionalization by language, ethnic, and regional groups, restraints to retaining power, mentality (nationalism, corruption, and dishonesty), social conditions (e.g., population density and wealth distribution), symptoms of instability, societal conflicts (e.g., demonstrations, strikes, and street violence), instability because of non-constitutional changes, financial risk legal framework, foreign exchange generation, current account balance, capital flow, international reserves, foreign exchange reserves, gold and other reserves, foreign debt assessment, debt as GDP converted to U.S. dollars, budget performance extent of deficit / surplus, and sources of revenue and major spending are found to have almost high risk on international construction market.

Recently, Abdelghny and Ezeldin (2010 [28]) have proposed that several ICJVs have failed achieving time, cost and quality targets due to lack of an appropriate risk assessment model. In this respect, Abdelghany and Ezeldin (2010 [28]) have developed a decision making process called “Risk Assessment Management System for Construction Operations (RAMSCO)” that evaluates the project’s overall risk to minimize the ICJV failures. The process of RAMSCO is illustrated in Figure 4.2. Within this study; risks of ICJVs are classified in four major risk groups; country specific risks, internal-project specific risks, schedule risks, and major contract clauses risks.

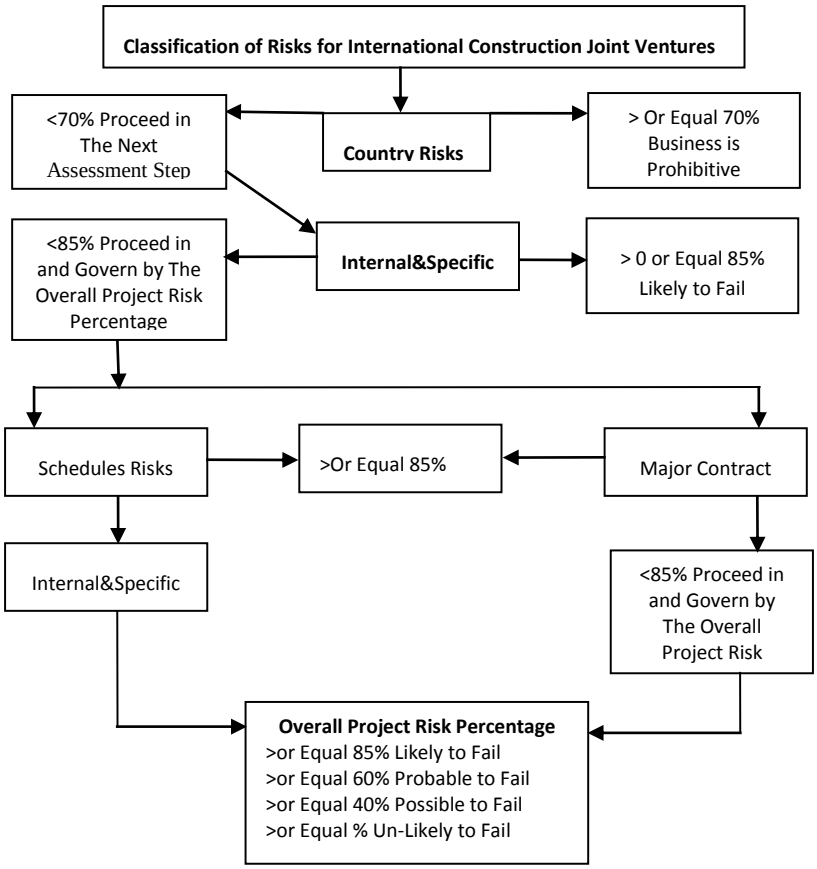


Figure 4.2 RAMCO'S Country Operating Risks Percentages Calculation following (Harner & Ewing, 1985) (Abdelghany and Ezeldin 2010 [28])

The developed model was applied in two cases. The percentages of risk groups are different in two cases. That's why; Abdelghany and Ezeldin (2010 [28]) supposed that the developed model (RAMSCO) could be a useful tool for achieving a successful ICJV.

On the other hand; go/no go decision models are one of the research areas of international construction literature. Han and Diekman (2001a [3]) have developed a go/no go decision model for international construction projects based on cross impact analysis. The developed go/no go decision process model for international construction is illustrated in Figure 4.3.

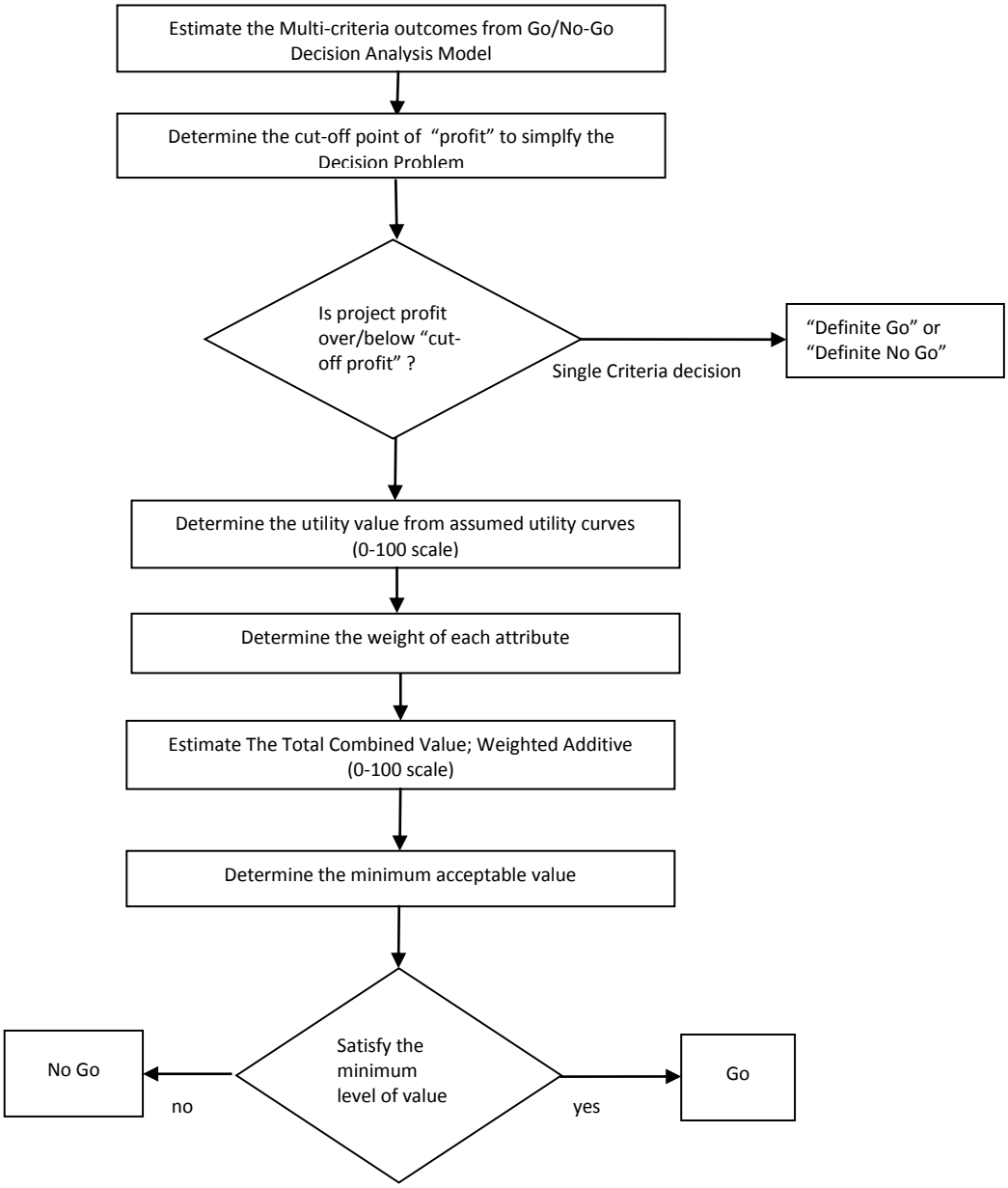


Figure 4.3 Go-No Go Decision Process Model Developed by Han and Diekmann (2001a [3])

The Cross Impact Analysis has been selected as a tool since; it is a powerful technique to deal with vague uncertainty and circumstances that are judgementally intensive but having poor data. Han and Diekmann (2001a [3]) posit that the developed model is fundamentally a risk-based, normative model.

Besides go /no go decision process models researchers paid attention to entry decision models, since the decision to enter a new foreign market is of critical importance to the company's profitability and sustainable growth. Gunhan (2003 [4]) developed a foreign market entry decision model based on analytical hierarchy process (AHP) for construction companies. The developed model is presented in Figure 4.4.

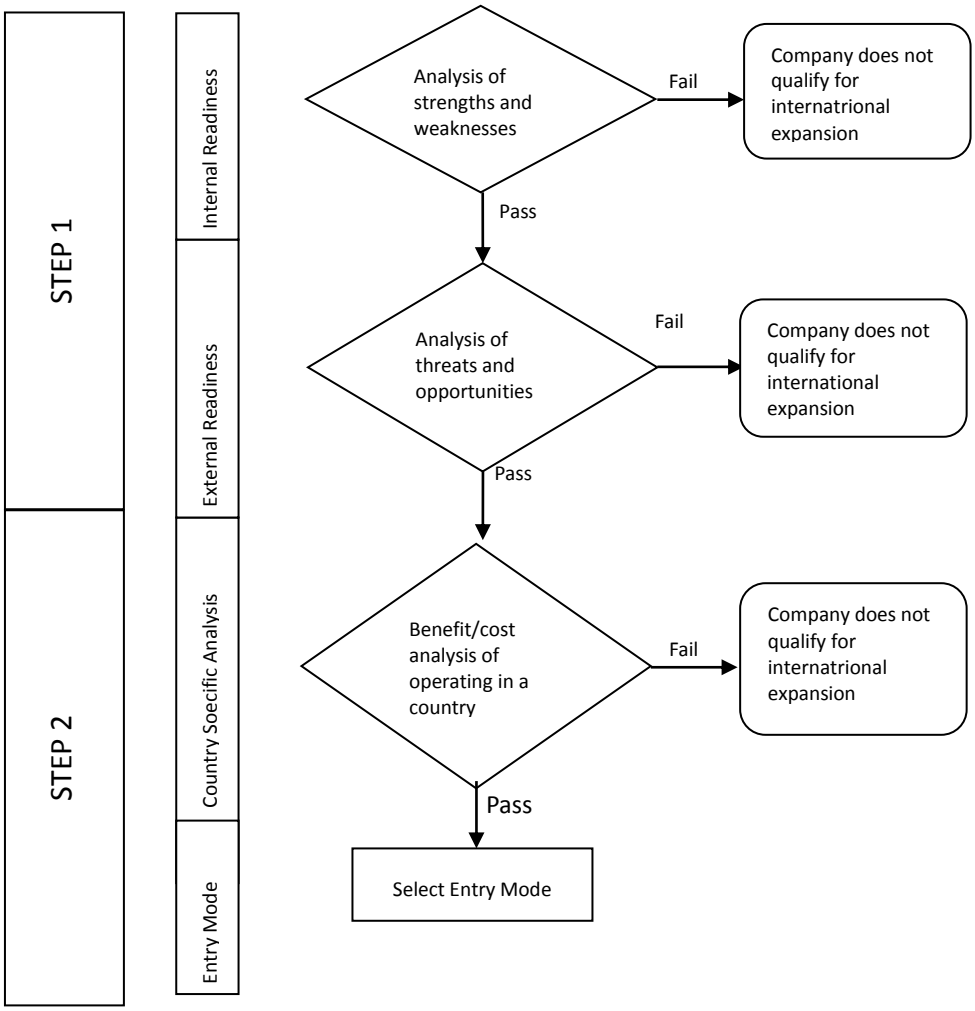


Figure 4.4 Flow Chart of the Foreign Market Entry Decision Model Developed by Gunhan (2003 [4])

The model consists of two main steps. The first step concerns the analysis of the internal and external readiness of a company whether it needs to expand into international markets, and whether it has the resources and organization to realize such an expansion. The second step of the study concerns the analysis of the risks specific the host country in order to identify the benefits and costs of conducting business in a specific country. When the outcomes of the following steps are positive, the model enables the companies the most appropriate entry mode. Gunhan (2003 [4]) proposed that the developed model enables executives to make a decision in case of expanding their business into international markets into a specific country.

The influence of host country related factors on the selection of entry mode has also been discussed by researchers. Chen and Messner (2009 [107]) tested the impacts of

some host country related factors upon the selection between permanent entry and mobile entry to provide both theoretical and practical implications about entry mode selection for international construction markets. Within this study, a regression model was developed in order to describe the international contractor's practices in entry mode selection. The hypotheses of the study are based on cultural difference, trade link, host market potential, language proximity, investment risk, entry restriction, and competition intensity. According to the results of the study; contractors do not tend to determine entry mode based on trade link, investment risk and host market attractiveness, but are more likely to use permanent entry than mobile entry when cultural distance or competitive intensity is significant or colonial link, language proximity or entry restriction is insignificant. The results of statistical analysis also showed that international contractors appear to be adventurous risk-takers and aggressive competitors. International contractors usually use mobile entry modes, but also prefer permanent entry modes in order to gain local knowledge, purchase new capabilities and establish local networks to overcome the challenges in the host country market.

Since, the effects of host country related risk factors differs from country to country, an effective risk management tool based on host country related risk factors becomes vital for international contractors while expanding their business in a new market and making decisions on entry mode.

International contractors usually get involved in projects in developing countries. Developing countries are characterized by dynamic and complex environments due to existing risks such as government instability, tax discrimination, high level of inflation, currency fluctuations, legal restrictions and shortages of adequately trained craftsmen. Many researchers have pointed out the negative effect of the failure in assessing political, economic, cultural, and legal environment of a project on the profitability of firms in a foreign market (Ashley and Bonner 1987 [24]; Han et al. 2007 [25]; Roy and Oliver 2009 [26]; Isık et al. 2010 [27]; Abdelghny and Ezeldin 2010 [28]). Han et al. (2005 [31]) has mentioned the reasons of failures in international construction projects. According to Han et al. (2005 [31]); one of the reasons for the failures is the selection of the inappropriate project partner. Since, host country related risk factors

have effects on the companies' decision to expand into new markets as well as on the performance of the venture, choosing the appropriate partner due to host country related risk factors becomes necessary for the success of the ICJV. Although selection of the appropriate partner has been mentioned as a performance criteria for ICJVs, a research which is discussing the effects of host country related risk factors on partner selection has not achieved and a model for selecting a partner for ICJVs has not developed in construction management literature. Host country related risk factors can be viewed as a determinant of IJV formation and partner selection.

In this respect, this study suggested that firms should select the proper ICJV partner due to host country related risk factors. International construction involves uncertainties and risks similar to domestic construction as well as risks specific to the host country. Consequently, industry related risk factors and project related risk factors are concerned in the developed partner selection model. Finally, this study proposed that; international contractors should assess host country related risk factors, industry related risk factors and project related risk factors while establishing ICJVs in developing countries.

4.4 Determination of Host Country Related Risk Factors

Since the results of the aforementioned country risk ratings are not applicable in international construction market, host country related risk factors that have effects on international construction determined in order to develop a partner selection model for ICJVs due to host country related risk factors. Two phases of literature review conducted to determine the host country related risk factors. In the first phase; host country related risk factors are stated through literature review in management science including; business, management and accounting journals. In the second phase; host country related risk factors are stated through construction management literature review.

The term "Country risk" is searched in business, management and accounting journals in Science Direct database. "Country risk" is searched in title, abstract and keywords of the articles for the period of 2000-2011. 64 articles are found consisting "country risk" and "political risk" in keywords, in title or in abstract. 20 journals in business,

management and accounting are concerned with the determined terms. International Business Review is the journal that has the most number of articles concerning the term; “country risk”. 12 articles are found in International Business Review concerning the term “country risk” in title, in abstract or in keywords. Consequently, the articles that were published in International Business Review are reviewed in order to determine the host country related risk factors.

The term “country risk” is also searched in Academy of Management Journal for the period of 2000-2011. 4 articles are found that are concerning the term “country risk”.

Besides, the selected articles that are published in International Business Review and Academy of Management Journal, 5 articles are found out due to cross references. These articles are published in the Journal of World Business, in Journal of International Business Review, in Journal of Management Research, in Organization Science, and in Cross Cultural Management: An International Journal.

In addition, finance and economy literature are also reviewed for the period of 2000-2011 due to the references of management science literature review. Articles which are published in Journal of Economic Surveys, International Journal of Finance and Economics, International Finance, and European Financial Management are selected to determine the factors of host country related risks.

In total 26 articles were reviewed, and 33 host country related risk factors were determined through literature review. The results of the literature review of host country related risk factors are as shown in Table 4.1. Political stability is the most cited host country related risk factor with the rating of 20. Exchange rate risk is cited with the rating of 17 where cultural difference has the rating of 13. GDP is also cited with the rating of 13. Law and regulations is the following risk factor with the rating of 11 as well as inflation. Internal and external conflict and the bribery and corruption in the host country are cited with the rating of 10. Socio-economic stability also has the rating of 10. Total interest payments and tax discrimination are the following host country related risk factors with the rating of 8 where tax discrimination has the rate of 7.

Table 4.1 Host Country Related Risk Factors in Management Science and Economy literature

Host Country Related Risk Factors / References	Meschi and Riccio (2008 [48])	Nielsen (2007 [100])	Gregorio (2005 [108])	Desbordes (2007 [97])	Jimenez (2010 [109])	Lopez- Duarte and Vidal-Suarez (2010 [99])	Khattab et al. (2008 [110])	Slangen and Tulder (2009	Oetzel (2005 [112])	Dimitratos et al. (2004 [113])	Demirbag et al. (2007 [114])	Tsang (2005 [115])	Feinberg and Gupta (2009	Ellstrand et al. (2002 [116])	Vaaler (2008 [117])	Schrader et al. (2000 [118])	Oetzel et al. (2001 [101])	Vij (2005 [23])	Heinsz and Macher (2004	Hague (2008 [103])	Quer et al. (2007 [120])	Hoti and McAller (2006	Hoti and Mc Aller (2004 [96])	Schroeder (2008 [102])	Remolona et al. (2008 [121])	Noland (2005 [122])	Patro et al. (2002 [123])	TOTAL
Gross Domestic Product per capita (GDP)			√	√									√		√			√	√	√		√	√	√	√	√	√	13
Current account/GDP			√															√				√	√		√			5
Real Annual GDP growth			√										√		√			√				√	√	√	√	√		9
Investment share in GDP					√																			√		√		3
Imports/GDP and Exports / GDP															√			√		√		√					√	5
Total interest payments / GNI																				√								1
Corporate taxes/tax discrimination	√			√						√	√								√				√				√	7
Industrial costs			√																									1
Expropriation	√								√			√	√		√						√		√					7
Trade costs													√															1
Monetary policy																	√		√									2
Unemployment rate							√		√								√			√				√		√		6
Total interest payments			√	√	√															√		√		√	√	√		8
Exchange rate risk			√	√	√		√		√	√	√	√		√	√	√	√					√	√		√	√	√	17
Concessional debt / total external debt																				√								1
Multilateral debt / total external debt																				√		√	√					3

Table 4.1 Continuing ….. Host Country Related Risk Factors in Management Science and Economy literature

References / Host Country Related Risk Factors	Net foreign debt / exports	Inflation	Government stability (political stability)	Government effectiveness	Restrictions on repatriation of profits	Transfer risk	Socio-economic conditions (social stability)	Internal and External conflict	Bribery and corruption	Military in politics	Religious tensions (religion in politics)	Law and regulations	Democratic accountability (Voice and accountability)	Bureaucracy quality	Cultural Differences	Language Barriers	Regulations towards foreign direct investments
Meschi and Riccio (2008 [48])			√	√	√		√	√	√						√		√
Nielsen (2007 [100])			√	√					√			√	√		√		
Gregorio (2005 [108])		√	√				√								√		
Desbordes (2007 [97])		√	√				√	√	√	√	√	√	√	√	√		
Jimenez (2010 [109])		√	√					√	√	√	√	√	√	√	√		
Lopez- Duarte and Vidal-Suarez			√												√	√	
Khattab et al. (2008 [110])			√					√							√		
Slangen and Tulder (2009 [111])			√	√			√		√			√	√		√		
Oetzel (2005 [112])			√	√			√	√	√			√		√			
Dimitratos et al. (2004 [113])				√								√					
Demirbag et al. (2007 [114])			√												√		√
Tsang (2005 [115])															√	√	√
Feinberg and Gupta (2009								√				√		√			
Ellstrand et al. (2002 [116])			√											√	√		
Vaaler (2008 [117])	√	√	√	√								√					
Schrader et al. (2000 [118])			√				√					√					
Oetzel et al. (2001 [101])			√					√									
Vij (2005 [23])	√														√		
Heinsz and Macher (2004			√														
Haque (2008 [103])	√	√				√											
Quer et al. (2007 [120])			√	√											√		√
Hoti and McAleer (2006 [105])	√	√	√				√	√	√	√	√	√	√	√			
Hoti and Mc Aller (2004 [96])	√	√	√				√	√	√	√	√	√					√
Schroeder (2008 [102])		√	√			√	√	√	√								
Bermolona et al. (2008 [121])		√	√						√								
Noland (2005 [122])		√					√										
Patro et al. (2002 [123])		√															
TOTAL	5	11	20	7	1	2	10	10	10	4	4	11	5	6	13	2	5

In the second phase of the literature review; host country related risk factors are determined through construction management literature. Four most respected journals of construction management literature were reviewed including; Journal of Construction Management and Engineering, Journal of Management in Engineering, Construction Management and Economics, and International Journal of Project Management for the period of 2000-2011.

The term “international construction risks” and the term “international project risks” are searched in ASCE Database within the two journals; Journal of Construction Management and Engineering, and Journal of Management in Engineering for the period of 2000-2010. Three articles were found including the term “international construction risks” in title, and three articles were found including the term “international construction risks” in keywords. One article was found containing the term “international project risks” in title. In addition, one article was found containing the “entry decision” in title. As a result; eight articles were selected in order to determine the international construction risk factors that are related to the host country due to the search in ASCE database.

The term “international construction risks” and the term “international project risks” are searched in Science Direct Database within the context of International Journal of Project Management for the period of 2000-2011. Eleven articles were found with several topics. Then, the topic of the articles was limited with the term “IJV performance” and the term “political risk”. Two articles were found through this search.

The term “international construction risks” and the term “international project risks” are searched in Taylor and Francis Database within the journal Construction Management and Economics for the period of 2000-2011. Two articles were found through the search in Taylor and Francis Database. Two more articles were selected due to their relevancy with the terms “entry decision” and “host country related risks”.

Three articles that published before 2000 were added to the list due to cross references. Zhi (1995) is one the most cited study which argues the risk management for overseas construction projects. Ashley and Bonner (1987) is also the first study which concerns the effects political risks in international construction. Bing et al. (1999)

is one of the first studies that analyses the risks for international construction projects. As a result; 17 articles were selected in order to determine host country related risk factors and their priorities in international construction and 18 host country related risk factors were determined through literature review. The results of the literature review of host country related risk factors in construction management are presented in Table 4.2.

Table 4.2 Host Country Related Risk Factors in Construction Management Literature

References / Host Country Related Risk Factors	Ashley and Bonner (1987)	Zhi, 1995)	Bing et al. (1999)	Hastak and Shaked (2000)	Han and Diekmann (2001a)	Han and Diekmann (2001b)	Kapila and Hendrickson (2001)	Mohamed (2003)	Wang et al. (2004)	Dikmen and Birgonul (2004)	Han et al. (2004)	Han et al. (2005)	Gunhan and Arditi (2005)	Ozorhon et al. (2007)	Al-Khattab et al. (2007)	Chen (2008)	Jha and Devaja (2008)	Total
Inflation		√	√	√	√	√	√		√		√		√	√				10
Exchange Rate Risk	√	√	√	√	√	√	√		√		√		√	√	√		√	13
GDP		√	√	√			√			√						√		6
Tax Discrimination	√	√			√	√	√								√	√		7
Interest Rate									√		√		√		√		√	5
Restriction on Profit Transfer			√		√	√	√					√		√				6
Political Stability	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	17
Expropriation; Nature and Extend of Nationalism	√			√	√	√		√	√						√	√		8
Bureaucracy				√				√										2
Entry Restrictions			√				√		√			√			√	√		6
Socio-economic Stability				√			√		√			√			√			5
Law and regulations	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	17
Hostilities With Neighboring Country	√	√		√														3
Societal Conflicts	√	√	√	√	√	√									√			6
Cultural Differences		√	√	√	√	√		√	√	√		√	√		√	√	√	13
Language Barrier		√	√	√	√	√		√	√							√		8
Bribery and corruption in the Host Country		√		√				√	√			√	√				√	7
Force Majeure		√	√		√	√			√						√		√	7

Law and regulations in the host country and political stability in the host country is the most cited host country related risk factor in construction management literature with the rating of 17. Cultural differences and exchange rate risk is cited with the rating of 13 where inflation has the rating of 10. Expropriation has the rating of 8 where tax discrimination, bribery and corruption, and language barrier in the host country has the rating of 7. The following risk factors; GDP, force majeure and internal/external conflicts in the host country have the rating of 6. Socio-economic stability, interest rate, entry restrictions and restrictions on profit transfer has the rating of 5. On the other hand, language barrier has the rating of 6 in construction management literature; however it has the rating of 2 in management science literature.

Political stability, law and regulations, cultural differences, exchange rate risk, inflation, tax discrimination, GDP, socio-economic stability, bribery and corruption in host country are cited both in management science literature and construction management literature. Force majeure is assumed to include internal and external conflicts is also determined as a risk criterion due to the results of the Table 4.1 and Table 4.2. In addition to these risk factors, language barrier has taken into account since it has the rating of 6 in construction management literature.

CHAPTER 5

DEVELOPMENT OF THE PARTNER SELECTION MODEL DUE TO HOST COUNTRY RELATED RISK FACTORS BY APPLYING ANP APPROACH

Partnering, partner selection criteria and partner selection models have been reviewed in the previous chapters of this study to understand the theoretical background of the partner selection phenomenon. This study proposes that a proper partner selection for the establishment of a successful ICJV should be based on host country related risk factors. Partner selection due to host country related risk factors is developed by applying ANP approach within the context of this study. The reasons of using ANP approach in the developed model are explained in this chapter. Besides, the steps of ANP are explained in detail. ANP in construction management literature is also reviewed in order to understand the applicability of ANP in other multi-criteria decision making problems. This chapter covers the framework of the study as well as the development of the partner selection model for ICJVs due to host country related risk factors. This chapter also covers the steps of the developed model by applying ANP in detail.

5.1 Analytical Network Process

ANP is the generalized form of the analytic hierarchy process (AHP), which allows making a decision when both tangible and intangible variables are concerned. AHP and ANP are multi-criteria decision making tools that were introduced by Saaty (1996 [131]). The AHP and the ANP can be defined as a hierarchical decision making process. The AHP is one of the most widely used multiple criteria decision-making (MCDM) methods. The AHP decomposes a problem into several levels that make up a hierarchy

in which each decision element is supposed to be independent. As the AHP does not allow interdependencies between components of a problem, the ANP can be used as an effective research methodology in cases where the interactions among the elements of a system form a network structure (Saaty 1996 [131]). Figure 5.1 illustrates the structural difference between a hierarchy and a network. In the network the interrelationships among criteria and feedback between factors of a complex structure can be seen. AHP is a linear top down structure with no feedback from lower to higher levels whereas has a loop at the bottom level presenting that each criteria in the given level depends on itself. Unlike the hierarchy of AHP, ANP provides a network which is spreading out in all directions (Saaty 2004 [132]). The ANP allows both interaction and feedback within clusters of elements (inner dependence) and between clusters (outer dependence). Such feedback best captures the complex effects of interplay in human society, especially when risk and uncertainty are involved (Saaty 2003 [133]). Consequently, the ANP is the most comprehensive framework for the analysis of societal, governmental and corporate decisions that is available today to the decision-makers as it allows one to include all the factors and criteria, tangible and intangible those have bearing on making the best decision.

Most of the decisions are analyzed with regard to what is important to a person or a group and what is seen as preferred in making a choice. However, Saaty (2004 [133]) argues when feedback is concerned, then what is likely to turn out as a result of all the influences is what one would like to know. The resulting priorities enable one to take the necessary actions and choose the proper alternative among potential alternatives. Moreover, through sensitivity analysis one would insure that not only the most preferred outcome will appear but also that it remain stable due to disturbing influences that may take place after it is implemented. That’s why; ANP should be useful in conflict resolution in the presence of many opposing influences.

The ANP also provides relative priority scales of absolute numbers from individual judgments that also belong to fundamental scale of absolute numbers. These judgments that are derived thorough ANP as it defines the relative influence of one of two criteria over the other in a pairwise comparison process on a third criterion in the

network, with respect to a control criterion" (Saaty 2004 [132]). Saaty (2004 [132]) has figured out that a control criterion is an important way to focus on thinking while answering the question of dominance. ANP allows decision makers to select the appropriate alternative among potential alternatives due to the determined criteria as well as make a selection concerning its benefits, opportunities, costs and risks. Consequently, it is essential to examine all the potential influences and not simply the influences from top to bottom or bottom to top as in the case of hierarchy when there are dependencies between criteria under different clusters. Saaty (2004 [132]) posited that; the idea of influence is in the center of decision-making, since it is a general term applicable in the physical world, in biology, in psychology, in politics and in every conceivable domain of the world and the society. Saaty (2004 [132]) has also acknowledged the concept of influence to be essential in decision making, since influence is a force that creates changes, order, or chaos.

According to Saaty (2004 [132]) comparisons not only have mathematical necessity, but they are our heritage from our biology. Comparisons require judgments. Judgments are associated with feelings, feelings with intensities, intensities with numbers, numbers with a fundamental scale, and a set of judgments represented by a fundamental scale with priorities" (Saaty 2004 [132]). In a given network the fundamental scale that represents dominance of one element over the other is an absolute scale and the derived priorities are normalized to yield an absolute scale.

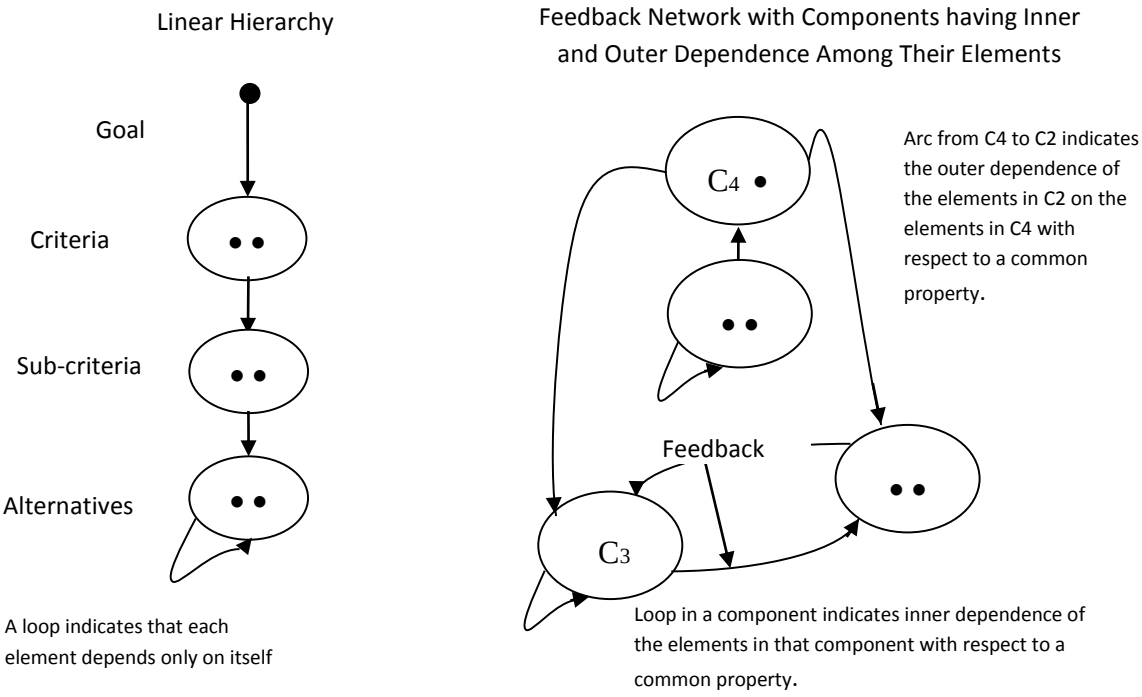


Figure 5.1 Structural differences between a hierarchy and a network (Saaty 2004 [132])

There are five main steps of developing a decision-making model by applying ANP approach. Each step of ANP is explained below in detail.

5.1.1 Problem Statement and Development of the Relation Matrix:

In the first step the elements of the multi-criteria decision making problem is stated. The decision problem is decomposed into clusters, and clusters are decomposed into sub-criteria. In order to find out the dependencies of the determined sub-criteria the relation matrix is developed due to the opinions of the decision maker/decision makers. The network of the decision making problem is stated in accordance with the relations of the criteria at cluster and sub-cluster levels through the results of the relation matrix in order to derive the pairwise comparisons.

5.1.2 Pairwise Comparisons

In the second step, pairwise comparisons on the criteria at the cluster and sub-cluster levels are conducted due to relation matrix. The questions of these pairwise comparisons are formulated in terms of dominance or influence. In order to find out the dominance, pairwise questions are formulated; which of the two criteria being

compared with respect to the given parent element has greater influence (is more dominant) on it? In an example; researchers should ask whether the criterion X or Y influences the given control criterion more, and how much more. When formulating pairwise questions in terms of influence the question is; which is influenced more with respect to the given parent element? In an example; in comparing X to Y with respect to a criterion, researchers should ask whether the criterion influences X or Y more, and how much more. (Saaty 2003 [133]). The pairwise comparisons concerned in matrices, where the diagonal is rated 1 as shown in figure 5.2.

A	N1	N2	…	Nn
N1	1	3	…	5
N2	1/3	1	…	7
Nn	1/5	1/7	…	1

Figure 5.2 Sample matrix for pairwise comparisons

N1 which is located on left column is compared to N1, N2,… and Nn which are located on the top row with respect to the control criteria A. The comparison process goes on for each element that is on the left column. In an example; the decision maker is asked whether the criterion X or Y influences the given control criterion more, and how much more? The preference of the decision maker is represented with the numbers. According to the sample matrix; N1 is found to have moderate importance (3) than N2 with respect to criterion A. Consequently, value of 1/3 is given in the intersection of N2/N1 on the second row.

The scale of AHP is also used in evaluating these pairwise questions. That's why; ANP is defined as the generalized form of AHP. AHP Rating Method has a scale of 1-9 when comparing criteria. This scale is used to define how much more the selected criterion has effects on the determined criterion with respect to the control criterion. Saaty's 1-9 scale for AHP preference is as presented in table 5.1. Saaty (1996 [131]) has mentioned that this scale is reasonable and reflects the degree to which we can discriminate the intensity of relationships between elements. This scale was derived from mathematics

of neural firing that leads to the well-known logarithmic law of stimulus response (Saaty 1996 [131]).

The equal importance of two criteria is defined by the score of 1 where the overwhelming importance of one criterion compared to the other is defined by the score of 9. The score of 3 indicates moderate importance of one criterion compared to the other. The score of 5 indicates strong importance and the score of 7 indicates very strong moderate importance of one criterion compared to the other. The score of 2, 4, 6 and 8 indicates intermediate values between priorities of 1-9 scale.

Table 5.1 Saaty's 1-9 scale for AHP preference (Saaty 1989 [134])

Intensity of importance	**Definition**	**Explanation**
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favor one over another
5	Strong importance	Experience and judgment strongly favor one over another
7	Very strong importance	Activity is strongly favored and its dominance is demonstrated in practice
9	Absolute importance	Importance of one over another affirmed on the highest possible order
2,4,6,8	Intermediate values	Used to represent compromise between priorities listed above

5.1.3 Supermatrix construction and Normalizing the Supermatrix

When a network of a decision making problem is developed and the pairwise comparisons are completed for the whole network the supermatrix which is called the unweighted supermatrix is derived. However, a supermatrix is no stochastic, since its columns are made up of several eigenvectors. That’s why; we need to compare its

clusters, according to their impact on each other with respect to the general control criterion in order to derive the stochastic matrix. This process must be revealed several times for each control criterion, and for that criterion several matrices are needed. This process is called as normalization and is explained in Figure 5.4 in detail. After computing the maximum eigenvectors of the constructed matrices, priority vectors are derived. The priority value of the concerned criterion is found by normalizing the vector. Below a sample matrix is developed in order to explain the normalization process (Figure 5.3).

A	N1	N2	N3
N1	1	1/2	1/5
N2	2	1	1/2
N3	5	2	1

Figure 5.3 Sample matrix of a pairwise comparison

The eigenvalues of the matrix is calculated by normalizing the matrix. In order to normalize the matrix, all the values in each column of the matrix are added. Then, each value of the column is divided with the sum of that column. In the example below, 0.129 represents the priority or weight of the criterion N1 where 0.277 represents the priority or weight of the criterion N2. The normalized matrix of the sample matrix (Figure 5.3) is presented in Figure 5.4. The outcome of this normalization is 'stochastic column', and its columns sum to 1 as it can be seen in Figure 5.4. The priorities of the determined criteria are derived through this normalization process.

$$N \begin{bmatrix} 0.125 & 0.143 & 0.118 \\ 0.250 & 0.286 & 0.294 \\ 0.625 & 0.571 & 0.588 \end{bmatrix} \begin{bmatrix} 0.129 \\ 0.277 \\ 0.595 \end{bmatrix}$$

Figure 5.4 Normalized matrix of the sample matrix presented in Figure 5.3

The system including cluster and sub-cluster matrices that are derived from pairwise comparison matrices (unweighted supermatrix) is converted to a supermatrix by entering the local priority vectors as a part of some column of a supermatrix. As Saaty (2004) has mentioned, the supermatrix represents the influence priority of a criterion on the left of the matrix on a criterion at the top of the matrix. A supermatrix that is derived by entering the values of comparisons is shown in Figure 5.5 and Figure 5.6 presenting one of its general entry *i, j* block. In Figure 5.5; the cluster C_i is alongside the supermatrix includes all the priority vectors derived for nodes (sub-criteria) that are parent nodes in the C_i cluster. The supermatrix of a hierarchy along with its supermatrix is as shown in Figure 5.5. The identity matrix I can be seen in the last row and column of the supermatrix.

According to Saaty (2004), assuming a system of *N* clusters, where the criteria in each cluster interact or have an impact on or are themselves influenced by some or all of the criteria of that cluster or of another cluster with respect to a control criterion is the way of understanding the supermatrix of a feedback system. Proposing that a cluster named *h*, indicated by C_h, h = 1, ..., N, has n_h criteria, which are indicated by e_{h1}, e_{h2},……., e_{hnk} . The impact of a determined set of criteria in a system is represented by the priority vector that is derived from pairwise comparisons. In case of an element has no influence on the other element, its influence priority is allocated as zero. When we make these comparisons with more than one expert, then we should calculate the geomean ($G = \sqrt[n]{X1\ X2} \dots \dots \dots Xn,$) of the comparisons in order to obtain the entering value in the matrix.

$$
W = \begin{array}{c|c}
 & \begin{array}{cccccccccccc} C_1 & & & & C_2 & & & & \cdots & C_n & & \end{array} \\
 & \begin{array}{cccccccccccc} e_{11} & e_{12} & \cdots & e_{1m_1} & e_{21} & e_{22} & \cdots & e_{2m_2} & \cdots & e_{n1} & e_{n2} & \cdots & e_{nm_1} \end{array} \\
\begin{array}{c} C_1 \\ \\ \\ \\ C_2 \\ \\ \\ \vdots \\ C_n \\ \\ \\ \\ \end{array} &
\begin{array}{c} e_{11} \\ e_{12} \\ \vdots \\ e_{1m_1} \\ e_{21} \\ e_{22} \\ \vdots \\ e_{2m_2} \\ \vdots \\ e_{n1} \\ e_{n2} \\ \vdots \\ e_{nm_1} \end{array}
\begin{bmatrix}
 & W_{11} & & W_{12} & & \cdots & & W_{1n} & \\
 & & & & & & & & \\
 & W_{21} & & W_{22} & & \cdots & & W_{2n} & \\
 & & & & & & & & \\
 & \vdots & & \vdots & & \vdots & & \vdots & \\
 & & & & & & & & \\
 & W_{1n} & & W_{2n} & & \cdots & & W_{nn} & \\
 & & & & & & & &
\end{bmatrix}
\end{array}
$$

Figure 5.5 The Supermatrix of a network developed by Saaty (1996 [131])

$$
\begin{bmatrix}
W_{i1}^{(j_1)} & W_{i1}^{(j_2)} & \dots & W_{i1}^{(j_{n_j})} \\
W_{i2}^{(j_1)} & W_{i2}^{(j_2)} & \dots & W_{i2}^{(j_{n_j})} \\
\vdots & \vdots & \vdots & \vdots \\
W_{in_i}^{(j_1)} & W_{in_i}^{(j_2)} & \dots & W_{in_i}^{(j_{n_j})}
\end{bmatrix}
$$

Figure 5.6 Detail of a Matrix in the Supermatrix of a network developed by Saaty (1996 [131])

5.1.4 Control of Consistency

Even though AHP has a coherent process, the results depend on the consistency of the comparisons. Since human judgements include contradictions, AHP suggest a consistency ratio (CR) as a process in order to measure the consistency of a comparison. Consequently, after a supermatrix is developed by the normalizing process, the consistency of judgements must be controlled. Calculating the CR allows us to control whether the developed matrix has created coherent judgements or not. The matrix can be assumed to be consistent if the CR≤0.1. If not, then the matrix is

found to be inconsistent and the judgements are revised. Calculation of CR depends on the comparison of the eigenvector (λ) with the number of criteria.

Taking the matrix A and its normalized matrix which is presented in Figure 12 as an example, the consistency ratio of this matrix is calculated below. The normalized matrix W defines the priorities of the matrix A. In order to obtain the eigenvector (λ) the multiplication of matrix A and the priority matrix W is calculated.

The result of this multiplication is the matrix D. λ max is obtained through the Arithmetic mean of the matrix D ($\lambda_{max} = \sum a_{ij} / n$). Then the consistency index (CI) is determined.(CI= λmax-n/n-1).

$$A \begin{bmatrix} 1 & 1/2 & 1/5 \\ 2 & 1 & 1/2 \\ 5 & 2 & 1 \end{bmatrix} \qquad W = \begin{bmatrix} 0.129 \\ 0.277 \\ 0.595 \end{bmatrix}$$

$$A \times W = \begin{bmatrix} (1 \times 0.129) + (1/2 \times 0.277) + (1/5 \times 0.595) \\ (2 \times 0.129) + (1 \times 0.277) + (1/2 \times 0.595) \\ (5 \times 0.129) + (2 \times 0.277) + (1 \times 0.595) \end{bmatrix} \quad D = \begin{bmatrix} 2.99 \\ 3 \\ 3.01 \end{bmatrix}$$

$\lambda_{max} =$ (2.99+3+3.01) /3 =3

CI= (3-3) / 3-1= 0

Finally, CR is calculated by dividing CI to the random index (RI). The values of random index are as shown in Table 5.2 (Saaty 1996 [131]).

CR= CI/RI

CR= 0/0.58=

0<1, then the matrix is found to be consistent.

Table 5.2 Random Consistency Index (CI)

Size of Matrix	1	2	3	4	5	6	7	8	9	10
Random Consistency Index	0.00	0.00	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

5.1.5 Limit Matrix Construction

The supermatrix raised to powers until the weights meet at the same point and become stabile. The result of this process enables the decision makers to realize all kind of influences between criteria including direct and indirect influences and the priorities of criteria. In an example; when criterion N1 influences criterion N2 directly, and criterion N2 directly influences criterion N3, then criterion N1 influences criterion N3 indirectly. Briefly, ANP provides to calculate all the effects of indirect influences in a decision making problem.

The matrix which is derived by raising to powers is called limit matrix. The values of this limit matrix are the desired priorities or the final weights of the elements of the decision network. The limit supermatrix has the same form as the weighted supermatrix with the only difference that all its columns are the same. Finally, the alternatives are also ranked according to their priority weights and the one with the highest priority weight is selected.

In order to do the mathematical computation of supermatrix, limit matrix and the comparison of alternatives, ANP software that is called the SUPER DECISIONS [135] can be used. SUPER DECISIONS is a very useful tool in order to apply a decision problem with a network. It’s possible to make a selection among potential alternatives due to the defined criteria and sub-criteria as well as due to criteria set composing of benefits-costs-opportunities-risks.

5.2 ANP in Construction Management

The ANP has recently been applied to several problems in construction management literature such as the selection of contractors (Cheng and Li 2004 [136]), selection of projects (Cheng and Li 2005 [137]; Dikmen et al. 2007 [138]), prediction of the performance of ICJVs (Ozorhon et al. 2007b [139]). Also the ANP has been applied to strategic partnering process (Cheng and Li 2007 [140]). Cheng and Li (2004 [136]) developed a contractor selection model by applying ANP approach. This study also makes contributions of the difference of AHP and ANP since it uses the hierarchical model of contractor selection model developed by Fong and Choi (2000 [141]). The developed contractor selection model by the study of Cheng and Li (2004 [136]) defined interdependent influences at the selection criteria level. Findings of this study denoted that the results of the contractor selection model by applying ANP approach differs from the model that was developed by Fong and Choi (2000 [141]) since, it considers the dependencies between selection criteria.

Cheng and Li (2005 [137]) developed a project selection model for construction clients to make them the best selection among potential projects to invest in. The developed project selection model based on ANP provides a selection among six potential projects. The developed project selection model consists of five levels including; prioritizing the projects, decision makers, types of the projects, project criteria evaluation due to defined sub-criteria and selection of the projects. The structure of the developed model is illustrated in Figure 5.7.

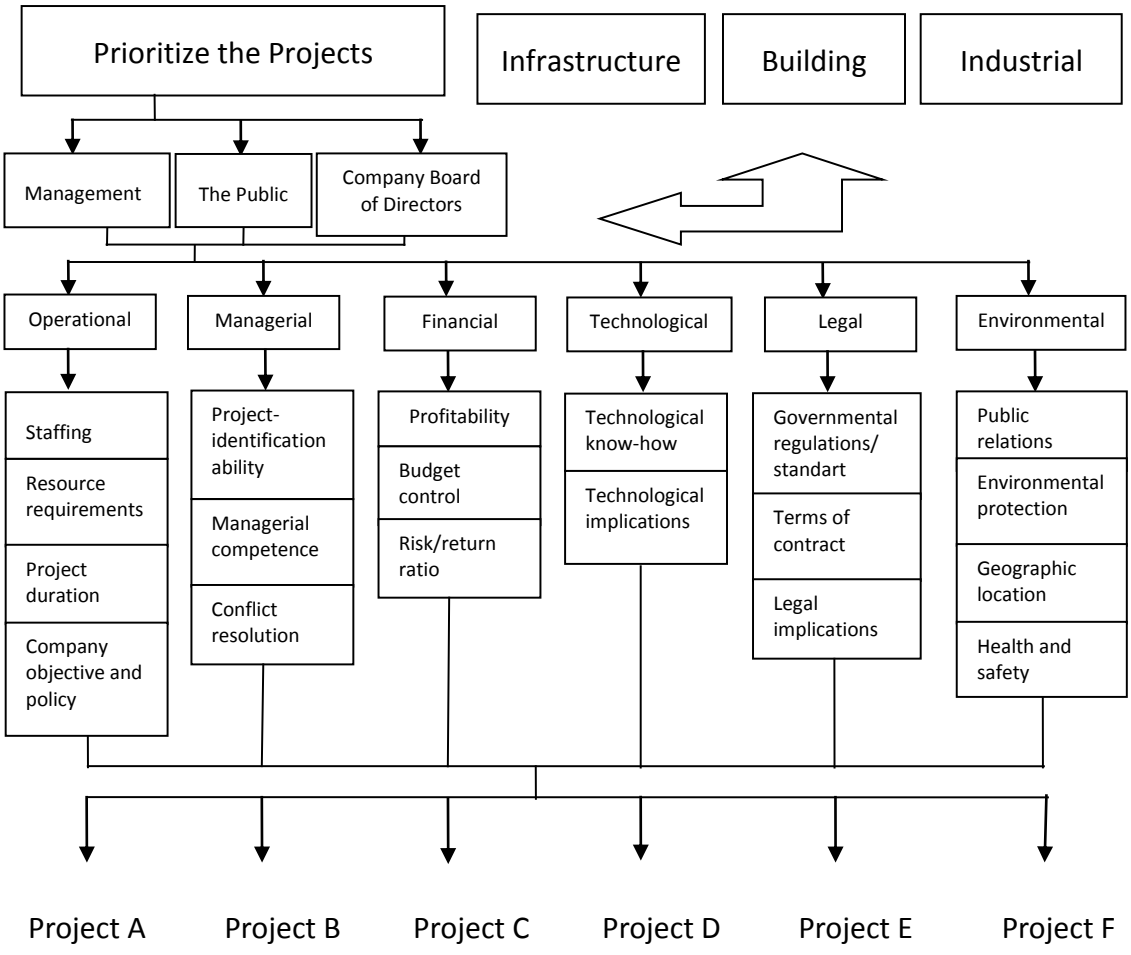


Figure 5.7 Project Selection Decision Model Developed by Cheng and Li (2005 [137])

Dikmen et al. (2007 [138]) developed a project selection for highway projects by using ANP depending on benefits, costs, opportunities and risks (BCOR) of the projects. The developed model based on a project selection among four potential projects. The model includes 20 selection criteria in total including; 2 criteria in benefits cluster, 2 criteria in costs cluster, 10 criteria in opportunities cluster, and 6 criteria in risks cluster. Dikmen et al. (2007 [138]) suggested that the results of the project selection by applying ANP approach based on BCOR significantly differs from the results of the classical benefits/costs analysis.

Ozorhon et al. (2007b [139]) developed a model to inspect the links between the determinants of performance and to notice the influences of these factors on ICJV

performance by using ANP. Within this study, determinants of ICJVs performance is categorized in four clusters including; JV structural factors, external factors, inter-partner relations, and inter-partner fit. Findings of this study suggested that; since cultural fit and strategic fit between partners are found to be one of the most important aspects of ICJV performance, partner selection is critical for the success of ICJVs. On the other hand, Ozorhon et al. (2007b [139]) proposed that adding the Delphi method in constructing this model could be more effective.

Cheng and Li (2007 [140]) developed a strategic partner selection process model by applying ANP. The developed model is as shown in Figure 5.8. Partnering formation, Partnering application and partnering reactivation are the determinants of strategic partner selection process due to the developed model. Team building, continuous improvement, effective co-ordination, facilitator, learning climate, joint problem solving, log-term commitment, open communication, and mutual trust are found to be the most important determinants of partner selection process. The differences of ANP and AHP approach also discussed in study by using both of the tools in developing this model.

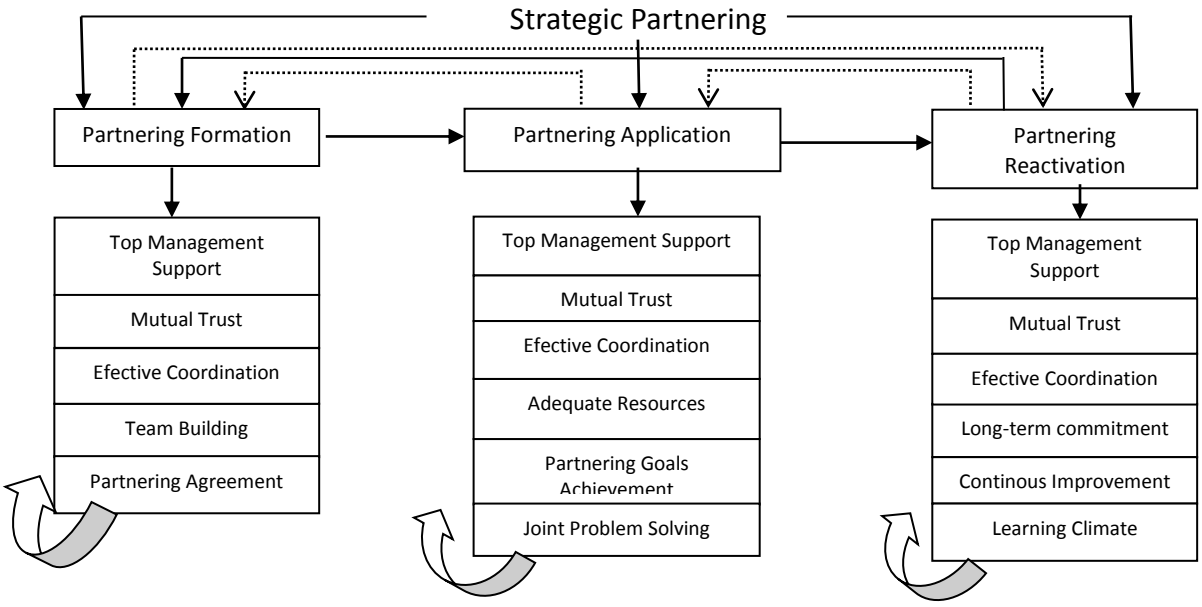


Figure 5.8 Strategic Partner Selection Network Developed by Cheng and Li (2007 [140])

5.3 Framework of the Partner Selection Model for ICJVs due to Host Country Related Risk Factors

Establishing a partnership with an appropriate partner can provide international contractors to manage successful ICJVs and gain competitive advantage. Success of an ICJV is generally depends on how well partners meet the challenge of achieving satisfied relationship. However, executives usually make their decisions due to subjective judgments, previous relations and the close relations of the partner with the host government while selecting a partner among potential candidates. Taking partner selection decision as a multi-criteria decision problem, host country related risk factors, industry related risk factors and project related risk factors are determined as selection criteria within the context of this study. Industry related risk factors and project related risk factors have been concerned as partner selection parameters since these risk factors have effects on international construction as well as have effects on domestic construction.

The main objective of the partner selection model for ICJVs due to host country related risk factors is to develop a decision-making tool for international contractors who want to select an appropriate partner among potential partners for the establishment of an ICJV. The development of the partner selection model for ICJVs due to host country related risk factors has included three main steps including; identification of risk factors for each cluster, development of the conceptual model and the application of ANP technique. The sub-criteria of host country related risk factors are determined through literature review. Adoption of these risk criteria is explained in Chapter 4 in detail and also described in this Chapter. The sub-criteria of industry related risk factors and project related risk factors are explained in this Chapter. After determining the sub-criteria risks for each cluster, a framework of the model was developed. The framework of the partner selection model due to host country related risk factors is presented in Figure 5.9. Determinants of the proposed partner selection model for ICJVs due to host country related risk factors are assumed to be interrelated and there are dependencies between the parameters. In an example; if there is a problem in the political stability of a country, then foreign contractors may have face some problems due to the changes

of government policy and also due to the economic crisis. Economic crisis emerges after political crisis and sometimes an economic crisis led to changes and crisis in political environment.

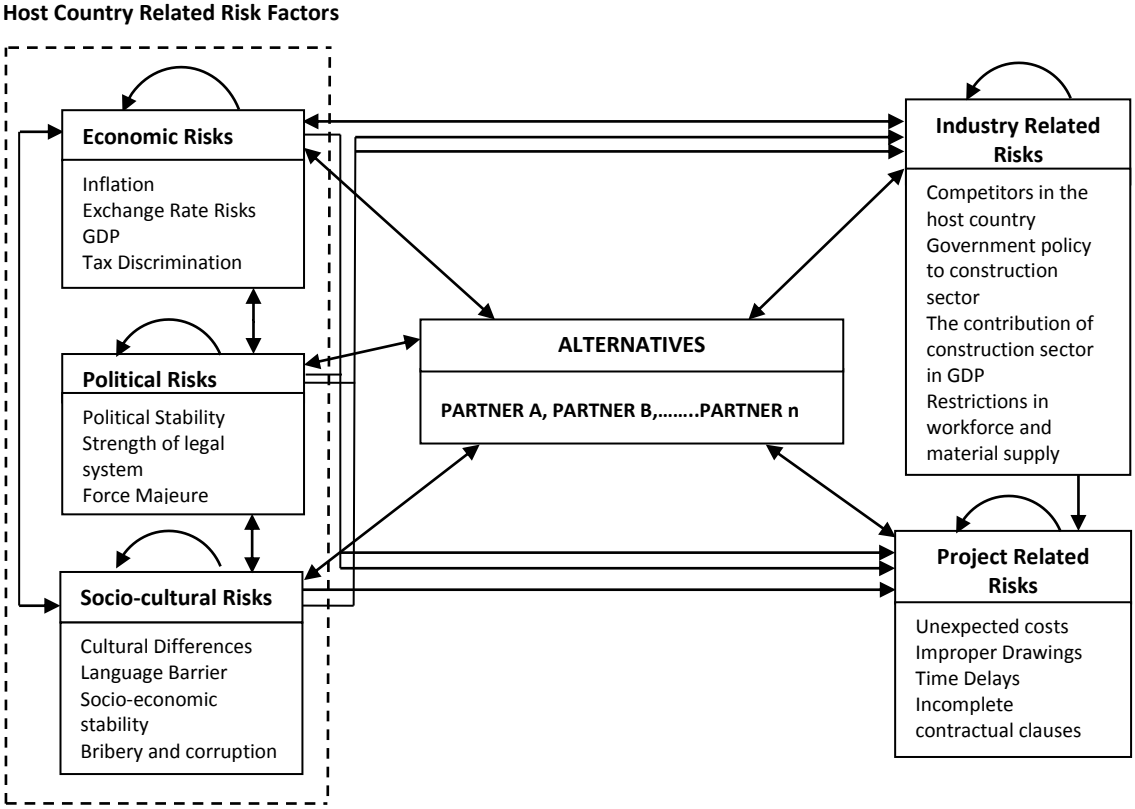


Figure 5.9 Conceptual Model of Partner Selection Model for ICJVs Due to Host Country Related Risk Factors

Analytical Network Process (ANP) is selected as the most appropriate tool for developing the partner selection model for ICJVs due to host country related risk factors. The main reason of using ANP as a research methodology is the interrelations and the dependency between sub-criteria of risk clusters.

5.4 Model Development

The partner selection model for ICJVs decomposed into three main clusters including; host country related risk factors, industry related risk factors and project related risk factors. Host country related risk factors are categorized in three groups including; economic risks, political risks, and socio-cultural risks (Figure 5.9). The sub-criteria risk factors of each risk cluster are determined through literature review as explained in

Chapter 4 (Table 1, Table 2). Industry related risk factors and project related risk factors are also concerned in this model since; these are the common risk factors for domestic and international construction.

A partner selection model for international construction projects dealing with the determined risk factors have not developed yet. Thus, the researchers didn't take host country related risk factors into account through the partner selection process (Cheng and Li 2007 [140]). The negative effects of failure in assessing host country related risk factors have explained in Chapter 4 in detail. Consequently, this study hypothesizes that; developing a partner selection model due to host country related risk factors becomes necessary for the success of ICJVs. ANP is selected as the most appropriate tool to develop this partner selection model, since it is a multi-criteria decision making problem including tangible and intangible parameters and interrelated relations between parameters. A partner selection for ICJVs due to host country related risk factors is developed by applying ANP approach within the context of this study. The determinants of the developed model and the steps of the model development are explained below.

Economic Risks

Economic risk is the likelihood that changes in economic environment of a host country would threat the profitability and other goals of an international business enterprise. Due to literature review; inflation, exchange rate risk, tax discrimination (tax regime) and Gross Domestic Product (GDP) of the host country are specified as the aspects of economic risks in a host country. These aspects of economic risks have effects on the overall performance of the construction industry as well as on the performance of ICJVs (Ozorhon et al. 2010 [10]; Nielsen 2007 [100]). A high level of inflation in the host country has serious effects on the cost of a construction project (Gunhan and Arditi 2005 [29]; Zhi 1995 [32]). High inflation rates also causes decrease in attractiveness of foreign investment due to the country's currency depreciation on the foreign exchange market. Fluctuations in the exchange rates in the host country can cause financial and payment related risks of currency exposure for foreign investors (Hastak, and Shaked, 2000 [2]; Han and Diekmann 2001a [3]). Kapila and Hendrickson (2001 [125]) discussed

the issues involved in exchange rate risk management for international construction companies.

When international contractors establish partnerships with a firm whom has insufficient financial capacity, high inflation rates and fluctuations in the exchange rate would adversely affect the performance of the ICJV. In addition to inflation and exchange rate risk, tax discrimination is the other economic risk factor. Since every country has its own tax regime, firms sometimes have to pay taxes both to the host country and to their parent country (Kapila and Hendrickson 2001 [125]). The economic risk emerges from sharply decreasing GDP due to a local economic crisis, high inflation rates, foreign currency rate fluctuations and high tax rates (Zhi 1995 [32]). Briefly, a partner who can assess the economic risks and make the proper actions adds value to the ventures.

Political Risks

Global firms and international contractors face much risk in international business, though a noteworthy portion of this risk depends on political environment. Political risk is the likelihood that changes in political conditions of a host country would threat the profitability and other goals of an international business enterprise (Kapila and Hendrickson 2001 [125]).

Multinational corporations have concerned the negative effects of political risk on the profitability of their IJVs (Shanmugam 1990 cited in Hoti and McAleer 2004 [96]). Since, multinational corporations and executives are dealing with the economic consequences of political decisions, international business scenarios are generally political-economic (Overholt 1982 cited in Hoti and McAleer 2004 [96]). Political risk is emerges in case of wars, internal and external conflicts, territorial disputes, government changes, and terrorist attacks around the world (Hoti and McAleer 2004 [96]). International contractors have serious problems to regional governmental changes. Ongoing construction projects may have postponed due to regional governmental changes. On the other hand; construction projects may come to an end due to internal or external conflicts, terrorist attacks or natural disasters. Government policy to foreign contractors is also very important for international contractors.

Bureaucracy and some restrictions in workforce and material supply and the taxes for foreign firms affect the performance of the project and the profitability of international contractors.

In this study; political stability, strength of legal system and force majeure factors are accepted as the main aspects of political risks due to literature review. Political conditions in a country affect the overall economy and all industries (Isik et al. 2010 [27]). Political stability has effects on the overall economy and socio-cultural conditions of a country. Political stability has also effects on project related risk factors, industry related risk factors and on the overall performance of the project. In example; changes in government policy to construction sector or government changes would have serious effects on the performance of the project and the profit of the international business enterprise. Executives invest time and energy in building relationships with the new government officials due to unexpected government changes (Oetzel 2005 [112]).

A partner whom has relations with government should regulate the relationship with government and bureaucracy and also regulate the relations with the new government in case of need. Khattab et al. (2007 [128]) suggested that "the political risk associated with international projects poses a threat to the majority of companies and that the vulnerability to political risk is related to a firm's degree of internationalization.

On the other hand, some researchers have discussed the similarity between political risk and sovereign risk (Ghose 1988 cited in Hoti and McAleer 2004 [96]). Some researchers define political risk that a sovereign host-government will unexpectedly change the ‘rules of the game' under which a business operates (Butler and Joaquin, 1998 cited in Khattab et al. 2007 [128]). Briefly, sovereign risk emerges when a sovereign government repudiates its overseas obligations. In example; due to global economic crisis, Dubai government announced that it would ask creditors of Dubai World to postpone debt repayments for six months in 2009. This financial crisis had serious impact on the construction sector in Dubai. The construction of the Nakheel (the world's tallest building) had stopped as a consequence of this financial crisis. Firms that have experience in global market and participating ICJVs with proper partners did

not make a loss. Recently, international contractors have faced problems due to government changes and internal conflicts in Libya. All construction projects had come to an end and contractors who carry projects had serious problems in taking their labor back and maintaining security in construction side. Since, management of claims, conflicts between partners and any contract related problems are regulated by the legal system in the host country, strength of the legal system in the host country is vital in the formation and operation of an ICJV (Ozorhon et.al 2007b [139]). Firms share these risks in case of establishing partnerships with a proper partner and gain sustainable competitive advantage in global market. Since, rule of law in the host country sets up and generates the organizational action and protects corporate activity, opportunistic behavior arises due to lack of adequate legal protection (Luo 1997 [12]). Environmental volatility has negative effects on the performance IJVs, since it avoids inter-partner collaborations. Briefly, a higher level of political risk is negatively related to the performance of IJVs.

Socio-cultural Risks

Socio-cultural conditions depend on the wealth and social stability in a country. National ideology, class structure, nationalism, bribery and corruption in the host country are the other aspects of socio-cultural conditions (Oliff et al. 1989 cited in Isik et al. 2010 [27]). Socio-cultural risks also include civil unrests due to ideological differences, unequal income distribution, and religious clashes (Hoti and McAleer 2004 [96]). Language barriers and cultural differences are the other reasons for social environments (Zhi 1995 [32]). Consequently, effective communication between cross-cultures, cultural fit of partners, and management of cross-cultures are discussed in international construction literature (Chan and Tse 2003 [78]; Fisher and Ranansinghe 2001 [142]; Ochieng and Price 2010 [143]; Ochieng and Price 2009 [144]; Ofori and Toor 2009 [145]; Ozorhon et al. 2008 [146]; Pena-Mora and Harpoth 2001 [147]; Pheng and Leong 2000 [148]; Phua and Rowlinson 2004 [149]; Tone et al. 2009 [150]).

The role of the partner is vital in ICJVs, since the foreign partner need the local knowledge of social life in order to manage the construction process. Firms have to consider the working days, holidays and religious days that is specific to the foreign

country while making the schedule of the project. The effect of these days on workforce has serious importance on the performance of the project. In this study; social stability, bribery and corruption in the host country, language barriers and cultural differences are specified as the indicators of socio-cultural risks due to literature review both in management science and construction management.

Industry Related Risk Factors

Industry related risk factors are determined thorough international construction literature review. Competitors in the host country, government policy to construction sector, the contribution of construction sector in GDP, and restrictions in workforce and material supply are specified as the industry related risk criteria in the partner selection model for international construction projects (Abdelghny and Ezeldin 2010 [28]; Isik et al. 2010 [27]; Ozorhon et al. 2007a [30]; Mohamed 2003 [11]; Han and Diekmann 2001a [3]; Hastak and Shaked 2000 [2]; Bing et al. 1999 [6]; Zhi 1995 [32]). Competitors in host countries are potential risk factors for firms entering into new markets (Gunhan and Arditi 2005 [29]). Government policy to construction sector and to foreign contractors has effects on the firms' decision on entering the specified country as well as on the performance of the project. Since, construction industry is the leading sector of the overall economy in a country, the contribution of construction sector in GDP is one of the industry related risks factors. According to the government policy to foreign contractors, there could be some restrictions in workforce and material supply. Aforementioned restrictions have serious effects on the cost of the project as well as on the quality of the project. When firms work with a proper partner, the ICJVs have the possibility to avoid these risks. The selected partner should obtain the needed workforce and the materials. On the other hand, firms gain competitive advantage against the competitors in the foreign country, in case they establish an ICJV with a proper partner and succeed in management of the ICJVs.

Project Related Risk Factors

Project related risk factors have been mentioned as an indicator for risk assessment models in international construction management literature (Hastak and Shakedb2000 [2]; Abdelghny and Ezeldin 2010 [28]). Project related risk factors also have been

mentioned as an aspect of ICJVs performance models (Ozorhon et.al 2007a [30]; Bing et al. 1999 [6]; Han and Diekmann 2001a [3]). Zhi (1995 [32]) suggested that project level risks may cause defective work, schedule delays or cost runs. In this study, project related risk factors are defined thorough literature review. Unexpected costs, time delays, improper drawings and claims in contract document (incomplete contract clauses) are specified as the project related risk factors (Bing et al. 1999 [6]; Ozorhon et al. 2007a [30]).

Since firms adopt ICJVs in order to share risks and rewards, it is essential to work with a partner who has the sufficient business and technological know-how, and financial capacity to avoid the effects of the aforementioned risks on the performance of the ICJVs.

5.5 Partner Selection Model for ICJVs due to Host Country Related Risk Factors

ANP is selected as the most appropriate multi-criteria decision making method in order to develop the partner selection model due to host country related risk factors. The interdependencies between the partner selection parameters are the main reason of using ANP approach in this study. The possibility of adding or removing a risk criterion due to the specific conditions of a foreign country is the other reason of applying ANP approach. Development of the proposed model through ANP was carried out in five major steps. These steps are;

- Constructing the relation matrix.
- Defining the relationship between the clusters (risk criteria) and cluster elements (sub-criteria) according to the relation matrix in ANP software, called SUPER DECISIONS [135].
- Producing the fictitious scenario consisting of the characteristics of the three potential partners.
- Pairwise comparisons of interdependent component levels, formation of limit matrix.

- Determination of the importance weights of each factor and selection of the appropriate partner among three potential partners. Each step of this study is discussed below.

5.5.1 Constructing the relation matrix

After constructing the framework of the study and determining the risk factors for each risk cluster, the relation matrix was formed due to the opinions of twelve experts. Experts are the professionals who are working in construction companies which have been involved in international construction market as a superstructure contractor. International Turkish contractors were selected from the ENR top international contractor list. Six of the selected experts are working as senior executives, and six of them are working as executives.

After determining the parameters of partner selection for ICJVs thorough literature review, respondents were asked to point out the relationship between the determined risks indicators in order to construct the relation matrix of the determined parameters and developing the network of the proposed model in ANP software, called SUPER DECISIONS. While deriving the relation matrix, one should ask: "if the Criterion X which is located on the left column has effect on the Criterion Y which is located on the top row". Twelve respondents evaluated the effects of each 19 risk criteria on the other 18 risk criteria. Eight of the respondents evaluate the relation matrix of the determined risks by e-mail and four of them make this evaluation by face to face interviews. The survey of the first step is presented in Appendix A.

Pairwise comparison questions are derived due to the relation matrix. The number of pairwise comparisons (matrices) gets high if the number of parameters and the relation between these parameters get higher. High number of matrices is the main shortcoming of ANP, since it becomes very impractical to collect data from experts. Consequently, the relation between risk factors was taken into account if the relationship was verified by at least seven experts among twelve experts that can be defined as qualified majority. The final relation matrix, which is determined according to the opinions of the experts, is illustrated in table 5.3. The sub-criteria of the socio-cultural risks cluster; cultural differences and language barrier have been excluded

from the model according to the relation matrix which was composed due to the opinions of the experts. Because the aforementioned criteria have neither effects on any of the risk criteria, nor have influenced by any of them. Cultural differences and language barrier have been mentioned as a risk criteria both in management science and construction management literature (Chan and Tse 2003 [78]; Ochieng and Price 2009 [144] Ozorhon et al. 2008 [146]; Pena-Mora and Harpoth 2001 [147]) but these risk criteria are excluded in this study due to the opinions of the experts.

Table 5.3 Relation Matrix

		Inflation	Exchange Rate Risk	GDP	Tax Dicrimination	Political Stability	Strength ogf legal system	Forje Majeure	Cultural differences	Language Barrier	socio-economic stability	Bribery and corruption	competitors in the host country	Government policy to construction sector	The contribution of construction sector in GDP	Restrictions in workforce and material supply	Unexpected costs	Improper drawings	Time Delays	Conflicts in contractual clauses (Incomplete contractual clauses)	PARTNER A	PARTNER B	PARTNER C
ECONOMIC RISKS	Inflation		√			√					√					√	√		√	√	√	√	√
	Exchange Rate Risk										√		√		√	√	√		√	√	√	√	√
	GDP					√					√										√	√	√
	Tax Dicrimination												√				√				√	√	√
POLITICAL RISKS	Political Stability	√	√	√			√				√	√		√							√	√	√
	Strength ogf legal system												√				√				√	√	√
	Forje Majeure	√	√	√	√	√	√				√			√	√	√	√		√	√	√	√	√
SOCIO-CULTURAL RISKS	Cultural differences																				√	√	√
	Language Barrier																				√	√	√
	socio-economic stability	√	√	√		√											√				√	√	√
	Bribery and corruption																				√	√	√
INDUSTRY RELATED RISKS	competitors in the host country													√							√	√	√
	Government policy to construction sector				√										√	√	√			√	√	√	√
	The contribution of construction sector in GDP																				√	√	√
	Restrictions in workforce and material supply																√		√	√	√	√	√
PROJECT RELATED RISKS	Unexpected costs																		√	√	√	√	√
	Improper drawings																√		√	√	√	√	√
	Time Delays																√			√	√	√	√
	Conflicts in contractual clauses (Incomplete contractual clauses)																√		√		√	√	√
PARTNERS	PARTNER A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	PARTNER B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	PARTNER C	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

After developing the relation matrix, the interactions between the determined risks criteria was defined in ANP software called SUPER DECISIONS to control if the defined relations were satisfactory to make the programme run correctly. The defined relations were found to be satisfactory after defining the relation in SUPER DECISIONS, since there are no columns or lines that are defined by zero in limit matrix as given in Table 5.4. Briefly, it was found out that adequate relations were defined in the network in order to make a decision between three potential partners due to the limit matrix.

Table 5.4 Limit Matrix

		1-ECONOMIC RISKS				2-POLITICAL RISKS			3-SOCIO-CULTURAL RISKS		4-INDUSTRY RELATED RISKS				5-PROJECT RELATED RISKS				ALTERNATIVES		
		C1	C2	C3	C4	C5	C6	C7	C10-	C11	C12	C13	C14	C15	C16	C17	C18	C19	PARTNER A	PARTNER B	PARTNER C
1-ECONOMIC RISKS	C1	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257	0.05257
	C2	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336
	C3	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697	0.036697
	C4	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562	0.025562
2-POLITICAL RISKS	C5	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553	0.084553
	C6	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018	0.047018
	C7	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299	0.11299
3-SOCIO-CULTURAL RISKS	C10	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378	0.09378
	C11	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416	0.031416
4-INDUSTRY RELATED RISKS	C12	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492	0.026492
	C13	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353	0.032353
	C14	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708	0.015708
	C15	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066	0.019066
5-PROJECT RELATED RISKS	C16	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419	0.018419
	C17	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442	0.019442
	C18	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946	0.017946
	C19	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227	0.018227
ALTERNATIVES	PARTNER A	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472
	PARTNER B	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472
	PARTNER C	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472	0.10472

5.5.2 Constructing the Network of the Proposed Model

ANP is a general theory of relative measurement that is used to obtain composite priority ratio scales from individual ratio scales that represent relative measurements of the influence of elements that interact with respect to control criteria (Saaty 1996 [131]). The aim of this step is to construct the network of the proposed model and to derive the pairwise comparisons between the risk criteria as they are independent on each other. The questionnaire survey, which is consisting of pairwise questions, has been derived from the network of the partner selection model that was developed due to the final relation matrix in SUPER DECISIONS. Three potential partners were defined as the variables in the network in order to make a choice. In order to make a selection among them, each potential partner was related with every risk criterion in the network. Network of the developed partner selection model for ICJVs due to host country related risk factors which is derived through SUPER DECISIONS is illustrated in figure 5.10.

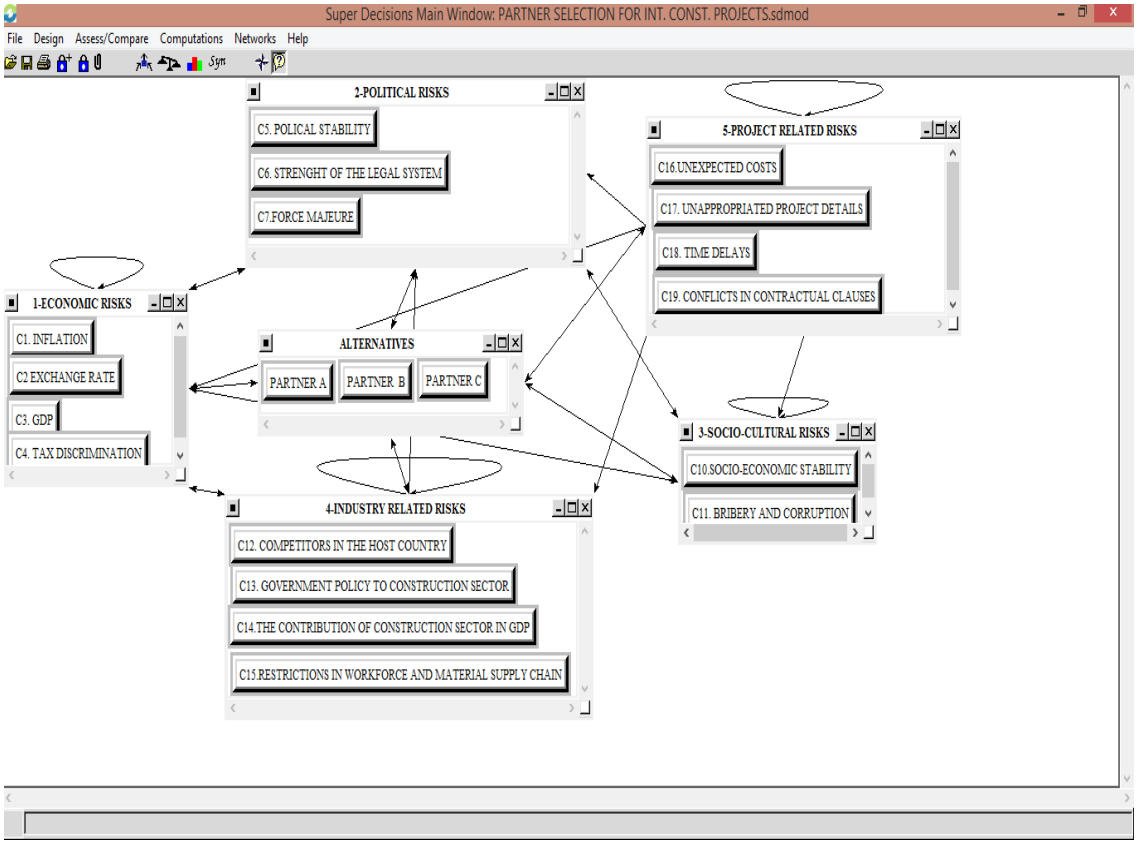


Figure 5.10 Snapshot of SUPER DECISIONS [135]

5.5.3 Defining the specific characteristics of the potential partners

Throughout partner selection literature, characteristics of potential partners are defined in a fictitious scenario consisting of the characteristics of the three potential partners in order to make selection among them. The characteristics of potential partners are categorized in seven criteria including task related and partner related criteria. Partner related and task related criteria of partner selection process are explained in Chapter 3 in detail. The characteristics of potential partners (PARTNER A / PARTNER B / PARTNER C) which are determined as alternatives in the network are as given in table 5.5.

Table 5.5 Characteristics of Potential Partners

Characteristics of the Potential Partners	PARTNER A	PARTNER B	PARTNER C
Experience in global construction market	20 Years	15 Years	10 Years
Financial capacity	Sufficient	sufficient	Insufficient
Technological know-how	Medium	Very good	Good
Firm culture	Similar	Different	Similar
Previous Collaborative relations	Non-existing	Existing	Non-existing
Relations with government	Existing (Medium level)	Non-existing	Existing (well)
Nationality	Local	Foreign	Local

5.5.4 Pairwise comparison Matrices of Interrelated Variables

Pairwise questions were asked to respondents in order to determine the importance weights of each risk factor on partner selection and select the appropriate partner among three potential partners due to host country related risk factors. AHP Rating Method that was suggested by Saaty (1989 [134]) was used as a rating method while evaluating these pairwise questions. AHP Rating Method has a scale of 1-9 when comparing criteria. Saaty's 1-9 scale for AHP preference is as given in table 3. In this step, the questionnaire survey consisting of pairwise questions was completed by face

to face interviews with each expert. The questionnaire survey consists of three types of pairwise questions.

In the first section; when evaluating the risk criteria with respect to each partner, respondents were asked; "how much more influencing the risk criterion X compared to the risk criterion Y with respect to the selection of Partner A / B / C?" There are 16 matrices for each of the partners. These matrices were established for each risk cluster that is a part of the network. The matrices were formed by comparing each criterion with the others in the same risk cluster (inner dependency). Samples of these matrices are given in table 5.6, table 5.7 and table 5.8.

In the second section, when evaluating the risk criteria with respect to the control criterion, respondents were asked; "how much more influencing the risk criterion X compared to the risk criterion Y with respect to the criterion Z"(outer dependency). There are 19 matrices for the second section. Samples of these matrices are given in table 5.9 table 5.10, and table 5.11.

In the third section, when evaluating the influence of each risk criterion on the potential partners (alternatives), respondents were asked; "how much more influenced Partner A compared to Partner B by the criterion X." There are 17 matrices for the third section. Samples of these matrices are given in table 5.12, table 5.13 and table 5.14. All sections of the questionnaire survey consisting of pairwise questions are presented in Appendix B.

Table 5.6 Relative comparison of the following binary risks on the selection of PARTNER A by using a 1- 9 scale of importance.

PARTNER A	Inflation	Exchange Rate Risk	GDP	Tax Discrimination
Inflation	1	3	5	3
Exchange Rate Risk	1/3	1	3	1
GDP	1/5	1/3	1	2
Tax Discrimination	1/3	1	1/2	1

Table 5.7 Relative comparison of the following binary risks on the selection of PARTNER A by using a 1- 9 scale of importance.

PARTNER A	Political	Strength of Legal System	Force Majeure
Political Stability	1	3	5
Strength of Legal System	1/3	1	3
Force Majeure	1/5	1/3	1

Table 5.8 Relative comparison of the following binary risks on the selection of PARTNER A by using a 1- 9 scale of importance.

PARTNER A	Competitors in the Host Country	Government policy to construction sector	The contribution of Construction Sector in	Restrictions in Workforce and Material Supply
Competitors in the Host Country	1	5	3	1
Government policy to construction sector	1/5	1	3	5
The contribution of Construction Sector in GDP	1/3	1/3	1	1/5
Restrictions in Workforce and Material Supply	1	1/5	5	1

Table 5.9 Relative comparison of the following binary risks on INFLATION by using a 1- 9 scale of importance.

INFLATION	Political Stability	Force Majeure
Political Stability	1	3
Force Majeure	1/3	1

Table 5.10 Relative comparison of the following binary risks on POLITICAL STABILITY by using a 1- 9 scale of importance.

POLITICAL STABILITY	Inflation	Exchange Rate Risk
Inflation	1	3
Exchange Rate Risk	1/3	1

Table 5.11 Relative comparison of the following binary risks on SOCIO-ECONOMIC STABILITY by using a 1- 9 scale of importance.

SOCIO-ECONOMIC STABILITY	Political Stability	Force Majeure
Political Stability	1	3
Force Majeure	1/3	1

Table 5.12 Relative comparison of potential partners (PARTNER A/B/C) with respect to POLITICAL STABILITY by using a 1- 9 scale of importance

POLITICAL STABILITY	PARTNER A	PARTNER B	PARTNER C
PARTNER A	1	1/5	1/3
PARTNER B	5	1	1/3
PARTNER C	3	3	1

Table 5.13 Relative comparison of potential partners (PARTNER A/B/C) with respect to INFLATION by using a 1- 9 scale of importance

INFLATION	PARTNER A	PARTNER B	PARTNER C
PARTNER A	1	1/3	1/5
PARTNER B	3	1	5
PARTNER C	5	1/5	1

Table 5.14 Relative comparison of potential partners (PARTNER A/B/C) with respect to COMPETITORS IN THE HSOT COUNTRY by using a 1- 9 scale of importance

COMPETITORS IN THE HSOT COUNTRY	PARTNER A	PARTNER B	PARTNER C
PARTNER A	1	1/3	1/5
PARTNER B	3	1	5
PARTNER C	5	1/5	1

5.5.5 Formation of Limit Matrix

After completing the questionnaire survey consisting of pairwise questions with each expert by face to face interviews; geomean ($G = \sqrt[n]{X1\ X2} \dots \dots \dots Xn,$) of the judgments of the experts were defined as the final data in SUPER DECISIONS, in order to make a decision among three potential partners and determine the priorities of the determined risks on partner selection decision for ICJVs. The judgments of each expert for each pairwise question are presented in Appendix C.

The limit matrix derived from the SUPER DECISIONS presents the importance weights of the parameters that were defined in the partner selection network. Priorities of the determined risks are also derived according to the importance weights, which are

presented in limit matrix. These priorities are the relative weights of the risk criteria in the partner selection network. The priorities of the risk criteria are shown in table 5.15. Political risks, socio-economic risks, force majeure, inflation, government policy to construction sector and the strength of the legal system are found to be most important determinants of the partner selection model due to country risk factors.

Table 5.15 Importance Weight of Risk Criteria

RISK CRITERIA	IMPORTANCE WEIGHT
C5-Political Stability	0.168173
C10-Socio-economic Stability	0.119867
C7-Force Majeure	0.089986
C1-Inflation	0.088687
C13-Government policy to construction sector	0.031701
C6-Strength of the Legal System	0.031629
C3-GDP	0.029224
C2-Exchange Rate Risk	0.028142
C11Bribery and corruption in the host country	0.027772
C12-Competitors in the host country	0.026871
C4-Tax Discrimination	0.023269
C14-Claims in contract document (incomplete contract clauses)	0.021931
C15-Restrictions in workforce and material supply	0.020078
C16-Unexpected costs	0.014916
C18-Time delays	0.013340
C17-Improper drawings	0.009181
C-13-The contribution of construction sector in GDP	0.006092

As a result, Partner A was chosen as the most appropriate partner as it had the largest relative weights (0.099483). Table 5.16 presents the local relative weights of the three potential partners based on the results of the partner selection model due to country risk, which was developed by applying ANP approach. The results of study are explained in Chapter 7 in detail.

Table 5.16 Synthesized Priorities for the Alternatives

ALTERNATIVES	LOCAL WEIGHTS
PARTNER A	0.099483
PARTNER B	0.075775
PARTNER C	0.073882

5.6 Case Study

A case study is conducted based on the developed partner selection model for ICJVs taking Russia as an example in order to verify the developed model. A partner selection model for an ICJV in Russia is developed due to the opinions of three executives by applying ANP approach. The executives are the professionals whom are working for international construction companies that have experience in Russia. The questionnaire survey including three types of pairwise questions are asked to experts. The pairwise questions are as presented in Appendix B. Experts evaluated the pairwise questions due to existing risks in Russia. The judgments of the three experts for each pairwise question are presented in Appendix D. The geomean ($G = \sqrt[n]{X1\ X2} \dots \dots \dots Xn,$) of the judgments of the experts were defined in SUPER DECISIONS in order to make a selection among the three potential partners. Finally, a partner selection model for ICJVs in Russia is developed. The same fictitious scenario of the partners is used in the case study. *Partner A* is selected as the most proper partner for an ICJV in Russia. The local weights of the potential partners are as presented in figure 5.11.

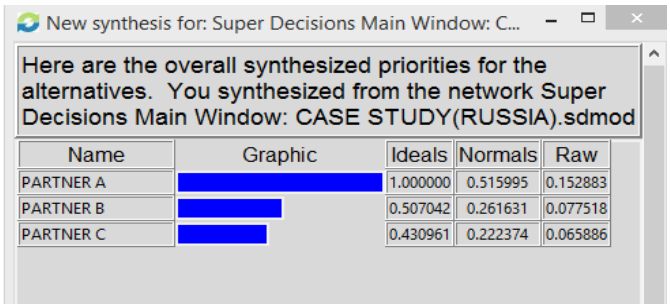
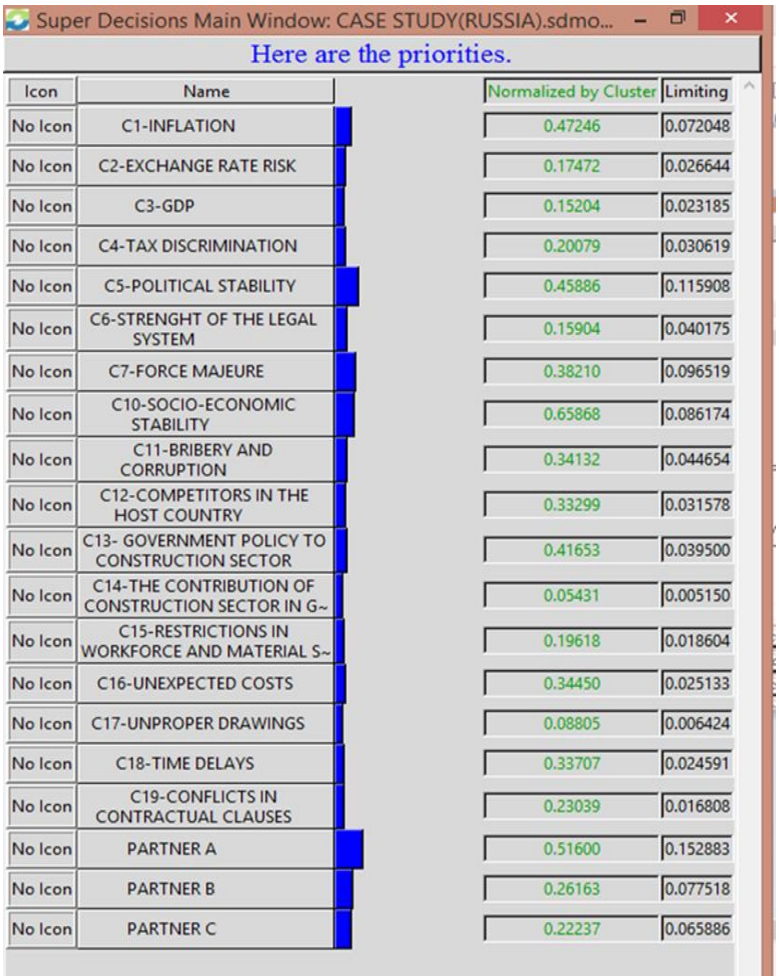


Figure 5.11 Snapshot of SUPER DECISIONS showing the ratings of the potential partners

The priorities of the host country related risk factors in Russia are also revealed through the developed model. Political stability, force majeure, socio-economic stability and inflation are found to be the most important risk factors in Russia. The priorities of the determined risk criteria and the priorities of the alternatives are illustrated in Figure 5.12.



Icon	Name	Normalized by Cluster	Limiting
No Icon	C1-INFLATION	0.47246	0.072048
No Icon	C2-EXCHANGE RATE RISK	0.17472	0.026644
No Icon	C3-GDP	0.15204	0.023185
No Icon	C4-TAX DISCRIMINATION	0.20079	0.030619
No Icon	C5-POLITICAL STABILITY	0.45886	0.115908
No Icon	C6-STRENGHT OF THE LEGAL SYSTEM	0.15904	0.040175
No Icon	C7-FORCE MAJEURE	0.38210	0.096519
No Icon	C10-SOCIO-ECONOMIC STABILITY	0.65868	0.086174
No Icon	C11-BRIBERY AND CORRUPTION	0.34132	0.044654
No Icon	C12-COMPETITORS IN THE HOST COUNTRY	0.33299	0.031578
No Icon	C13- GOVERNMENT POLICY TO CONSTRUCTION SECTOR	0.41653	0.039500
No Icon	C14-THE CONTRIBUTION OF CONSTRUCTION SECTOR IN G~	0.05431	0.005150
No Icon	C15-RESTRICTIONS IN WORKFORCE AND MATERIAL S~	0.19618	0.018604
No Icon	C16-UNEXPECTED COSTS	0.34450	0.025133
No Icon	C17-UNPROPER DRAWINGS	0.08805	0.006424
No Icon	C18-TIME DELAYS	0.33707	0.024591
No Icon	C19-CONFLICTS IN CONTRACTUAL CLAUSES	0.23039	0.016808
No Icon	PARTNER A	0.51600	0.152883
No Icon	PARTNER B	0.26163	0.077518
No Icon	PARTNER C	0.22237	0.065886

Figure 5.12 Snapshot of SUPER DECISIONS showing the priorities

The results of the model are also explained by the percentage of the risk criteria and the preference of the potential partner in Table 5.16. The limiting priority or importance % for each risk criteria is the result of the limit matrix that is derived through the partner selection model for ICVJ due to current risk factors in Russia.

Table 5.17 The importance of risk criteria and the preference of partners

Cluster	Criteria	Limiting priority or importance (%)	Normalized by cluster (%)
Economic Risks	C1. Inflation	7.20%	47,24%
	C2. Exchange rate risk	2,66%	17,45%
	C3. GDP(Gross Domestic Product)	2,32%	15,22%
	C4. Tax discrimination	3,06%	20,07%
Political Risks	C5. Political stability	11,59%	45,88%
	C6. Strength of the legal system	4,02%	15,91%
	C7. Force Majeure	9,65%	38,20%
Socio-cultural Risks	C10. Socio-economic stability	8,62%	65,85%
	C11. Bribery and corruption	4,47%	34,14%
Industrial Risks	C12. Competitors in the host country	3,16%	33,29%
	C13. Government policy to construction sector	3,95%	41,62%
	C14. The contribution of construction sector in GDP	0,52%	5,47%
	C15. Restrictions in workforce and material supply	1,86%	19,59%
Project Risks	C16. Unexpected costs	2,51%	34,43%
	C17. Improper drawings	0,64%	8,77%
	C18. Time delays	2,46%	33,74%
	C19.Conflicts in contractual clauses (incomplete contract clauses)	1,68%	23,04%
ALTERNATIVES	Partner-A	15,29%	51,60%
	Partner-B	7,75%	26,15%
	Partner-C	6,59%	22,24%

CHAPTER 6

RESEARCH FINDINGS AND DISCUSSION

The analysis of the proposed model is discussed in this chapter. Two phases of survey is conducted in the context of this study. The surveys of the study are administered to the executives of international contractors. The relation matrix of the determined risk criteria is developed due to the opinions of experts is explained in the section 6.1. The inter-relation of the determined risk criteria is discussed in this section. In the second phase of the survey experts are asked to make relative comparisons of the determined risk criteria with respect to a control criterion in order to develop the partner selection model. The section 6.2 covers the results of the second survey by defining the results of the pairwise comparisons in SUPER DECISIONS. The developed model allows decision makers to make a selection among three potential partners in order to establish an ICJV due to host country related risk factors. The characteristics of the selected partner candidate and the characteristics of the other candidates are discussed in section 6.3. The priorities of the risks are determined also discussed in this section. Finally, the differences between partner selection in practice and the selected partner due to the developed model are discussed in the context of this section.

6.1 Relation Matrix

Partner selection model for ICJVs due to host country related risk factors is developed through two phases of survey. In the first phase of the survey, respondents were asked to indicate the criterion affected by the given criterion. The relation matrix which is representing the interdependency of the determined risk criteria is the outcome of this survey. The relation matrix is as shown in Table 1. Twelve respondents evaluated the

effects of each 19 risk criteria on the other 18 risk criteria. Eight of the respondents evaluate the relation matrix of the determined risks by e-mail and four of them make this evaluation by face to face interviews. In this study, the relation between risk indicators was taken into account if the relationship was verified by at least seven experts among twelve experts that can be defined as qualified majority. Cultural differences and language barrier have been excluded from the network according to the relation matrix which was composed due to the opinions of the experts, since these risk factors neither have effects on any of the risk criteria, nor have influenced by any of them as highlighted in Table 6.1. Political risk factors and economic risk factors are found to be the most vital parameters in partner selection process for international construction projects due to the relation matrix. Force majeure including; the wars, terrorist attacks, internal and external conflicts and also acts of God has effects on 13 risk criteria. Then, political stability is found to be the most effective risk criterion that has effects on the others. Political stability has effects on 9 risk criteria. Inflation and exchange rate risk have effects on 8 of the other risk criteria. Finally, socio-economic stability is found to be effective on 6 risk criteria, and government policy to construction is found to be effective on 5 of the other risk criteria. Table 6.1 presents the influences of host country related risk factors including; economic, political and socio-economic risk factors.

Inflation in the host country has effects on exchange rate risk, political stability, socio-economic stability, bribery and corruption in the host country. In addition, inflation has effects on restrictions in workforce and material supply in the host country as well as has effects on unexpected costs, time delays and conflicts in contractual clauses. Consequently, inflation is found to have effects at least on one criterion in each risk cluster (Table 6.1). Exchange rate risk in the host country has effects on inflation and socio-economic stability. Besides, exchange rate risk has also effects on the competitors in the host country, the contribution of construction sector in GDP, restrictions in workforce and material supply due to the relation matrix. Exchange rate risk also has effects on project related risk factors including; unexpected costs, time delays, and conflicts in contractual clauses (Table 6.1).

Table 6.1 Relation Matrix

		ECONOMIC RISKS				POLITICAL RISKS			SOCIO-CULTURAL RISKS				INDUSTRY RELATED RISKS				PROJECT RELATED RISKS				PARTNERS		
		Inflation	Exchange Rate Risk	GDP	Tax Dicrimination	Political Stability	Strength ogf legal system	Forje Majeure	Cultural differences	Language Barrier	socio-economic stability	Bribery and corruption	competitors in the host country	Government policy to construction sector	The contribution of construction sector in GDP	Restrictions in workforce and material supply	Unexpected costs	Improper drawings	Time Delays	Conflicts in contractual clauses (Incomplete contractual clauses)	PARTNER A	PARTNER B	PARTNER C
ECONOMIC RISKS	Inflation		√			√					√					√	√		√	√	√	√	√
	Exchange Rate Risk										√		√		√	√	√		√	√	√	√	√
	GDP					√					√										√	√	√
	Tax Dicrimination												√				√				√	√	√
POLITICAL RISKS	Political Stability	√	√	√			√				√	√		√							√	√	√
	Strength ogf legal system												√				√				√	√	√
	Forje Majeure	√	√	√	√	√	√				√			√	√	√	√		√	√	√	√	√
SOCIO-CULTURAL RISKS	Cultural differences																				√	√	√
	Language Barrier																				√	√	√
	socio-economic stability	√	√	√		√											√				√	√	√
	Bribery and corruption																				√	√	√

GDP and tax discrimination are found to be less effective criteria than inflation and exchange rate risk. GDP has effects on political stability as well as has effects on socio-economic stability. Tax discrimination has effects on the competitors in the host country and unexpected costs (Table 6.1).

Political stability in the host country has effects on inflation, exchange rate risk and GDP due to the relation matrix. Political stability in the host country has effects on the strength of legal system and force majeure as well as has effects on socio- economic stability. Political stability in the host country has also effects on government policy to construction sector and conflicts in contractual clauses (Table 6.1).

Strength of legal system in the host country has effects on the competitors in the host country, unexpected costs and conflicts in contractual clauses (Table 6.1). Bribery in the host country has found to be non-effective on host country related risk factors, industry related risk factors and project related risk factors. Force majeure has effects on each of the economic risk factors and political risk factors as well as has effects on the socio-economic stability in the host country. Besides, force majeure has found to be effective on government policy to construction sector, the contribution of construction sector on GDP and the restrictions in workforce and material supply. Force majeure has also effects on project related risk factors including, unexpected costs,

time delays and conflicts in contractual clauses (Table 6.1).

After defining the relations of the determined risk factors in SUPER DECISIONS, the network of the partner selection for ICJVs is derived. The network of the model is illustrated in Figure 18. Pairwise comparisons are derived after the development of the network through SUPER DECISIONS. Pairwise comparisons can also be obtained due to the relation matrix. A pairwise comparison is composed if at least two risk criteria on the left side of the column have effects on the criterion on the top of the row. These relations are highlighted on the relation matrix on Table 6.1 and Table 16.2. In an example; respondents were asked to make a relative comparison between inflation and GDP by using a 1-9 scale of importance with respect to political stability. In addition, each potential partner is associated with every risk criterion in the network in order to make a selection among them. Consequently, partners are compared due to the impact of each risk criteria. These pairwise comparisons can be seen third section of the second survey. In an example; respondents were asked to make a relative comparison between potential partners with respect to inflation. The pairwise comparisons were given in Appendix B in detail.

Industry related risk factors are found to be effective on project related risk factors due to relation matrix. Competitors in the host country are found to have effects on government policy to construction sector. Government policy to construction sector is found to be effective on tax discrimination. Government policy to construction sector has effects on the contribution of construction sector in GDP as well as has effects on the restrictions in workforce and material supply. Beside, government policy to construction sector in the host country has effects on project related risk factors including; unexpected costs and conflicts in contractual clauses (Table 6.1).

Table 6.2 Relation Matrix

		ECONOMIC RISKS				POLITICAL RISKS			SOCIO-CULTURAL RISKS				INDUSTRY RELATED RISKS				PROJECT RELATED RISKS				PARTNERS		
		Inflation	Exchange Rate Risk	GDP	Tax Dicrimination	Political Stability	Strength ogf legal system	Forje Majeure	Cultural differences	Language Barrier	socio-economic stability	Bribery and corruption	competitors in the host country	Government policy to construction sector	The contribution of construction sector in GDP	Restrictions in workforce and material supply	Unexpected costs	Improper drawings	Time Delays	Conflicts in contractual clauses (Incomplete contractual clauses)	PARTNER A	PARTNER B	PARTNER C
INDUSTRY RELATED RISKS	competitors in the host country													√							√	√	√
	Government policy to construction sector				√										√	√	√			√	√	√	√
	The contribution of construction sector in GDP																				√	√	√
	Restrictions in workforce and material supply																√		√	√	√	√	√
PROJECT RELATED RISKS	Unexpected costs																		√	√	√	√	√
	Improper drawings																√		√	√	√	√	√
	Time Delays																√			√	√	√	√
	Conflicts in contractual clauses (Incomplete contractual clauses)																√		√		√	√	√

The contribution of construction sector in GDP has no effects on any of the determined risk factors. Restrictions in workforce and material supply have effects on project related risk factors including; unexpected costs, time delays and conflicts in contractual clauses (Table 6.2). Project related risk factors are found to have effects on project related risk factors where time delays have effects on the government policy to construction sector. Unexpected costs of the project have effects on time delays and conflicts in contractual clauses. Improper drawings have effects on unexpected costs, time delays and conflicts in contractual clauses. Time delays have effects on unexpected costs and conflicts in contractual clauses. Conflicts in contractual clauses have effects on unexpected costs and time delays (Table 6.2).

6.2 Application of SUPER DECISIONS

In the first phase of the survey, respondents were asked to make relative comparisons between risk criteria with respect to the determined risk criterion. The second phase of the survey conducted by face to face interviews with each respondent. After achieving the results of the pairwise comparisons with each expert by face to face interviews; geomean ($G = \sqrt[n]{X1\ X2} \dots \dots \dots Xn,$) of the judgments of the experts were defined as in SUPER DECISIONS. The unweighted supermatrix, the weighted supermatrix and the limiting matrix are derived through SUPER DECISIONS [135] after entering the results of

the pairwise comparisons. The unweighted supermatrix is given in Table 6.3. The weigted supermatrix is given in Table 6.4, and the limit matrix is given in Table 6.5. The unweighted matrix is derived through the results of the pairwise comparisons before normalizing. The weighted supermatrix indicates the matrix that can be derived thorough normalization u-of the unweighted supermatrix. The limit supermatrix with the same value on its columns gives the final relative weights of the determined risk criteria and also gives the ratings of the alternatives.

Table 6.3 Unweighted Supermatrix of the Partner Selection Model for ICJVs

		1-ECONOMIC RISKS				2-POLITICAL RISKS			3-SOCIO-CULTURAL RISKS		4-INDUSTRY RELATED RISKS				5-PROJECT RELATED RISKS				ALTERNATIVES		
		C1	C2	C3	C4	C5	C6	C7	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	PARTNER B	PARTNER A	PARTNER C
1-ECONOMIC RISKS	C1	0	1	0	0	0.7335	0	0	0.5687	1	0	0	0	0.4296	0.501	0	0.5958	0.4214	0.208907	0.30906	0.337859
	C2	0	0	0	0	0	0	0	0.205	0	0	0	0	0.5704	0.3925	0	0.4042	0.5786	0.320198	0.192519	0.257962
	C3	0	0	0	0	0.2665	0	0	0.2263	0	0	0	0	0	0	0	0	0	0.148066	0.125883	0.286219
	C4	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1064	0	0	0	0.322829	0.372538	0.11796
2-POLITICAL RISKS	C5	0.7585	0.7822	0.7758	0	0	0.7914	1	0.8105	1	0	0.8217	0	0	0	0	0	0.432	0.500473	0.519312	0.498075
	C6	0	0	0	0	0	0	0	0	0	1	0	0	0	0.6797	0	0	0.3889	0.381173	0.378628	0.40382
	C7	0.2415	0.2178	0.2242	1	1	0.2086	0	0.1895	0	0	0.1783	1	1	0.3203	0	1	0.1792	0.118354	0.10206	0.098105
3-SOCIO-CULTURAL RISKS	C10	1	1	1	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0.58124	0.438518	0.306037
	C11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.41876	0.561482	0.693963
4-INDUSTRY RELATED RISKS	C12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.238768	0.349022	0.388496
	C13	0	0	0	1	0	0	0	0	0	0	0	1	1	0.6716	0	0	0.3288	0.427468	0.1961	0.2303
	C14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.235249	0.069349	0.077619
	C15	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3284	0	1	0.6712	0.098515	0.385529	0.303585
5-PROJECT RELATED RISKS	C16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2688	0.4189	0.217236	0.253599	0.272293
	C17	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4262	0	0.3175	0.2802	0.110437	0.102174	0.158261
	C18	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3383	0	0	0.3009	0.274211	0.18	0.232957
	C19	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2355	0	0.4138	0	0.398117	0.464227	0.336489
ALTERNATIVES	PARTNER B	0.213	0.1561	0.2094	0.2373	0.2289	0.1354	0.3243	0.5701	0.168	0.3972	0.3312	0.3633	0.2448	0.246	0.2829	0.3998	0.2054	0	0	0
	PARTNER A	0.5115	0.5255	0.4647	0.4522	0.4267	0.4513	0.3865	0.2251	0.4796	0.3922	0.3519	0.2924	0.5086	0.4955	0.3915	0.3074	0.414	0	0	0
	PARTNER C	0.2755	0.3185	0.3259	0.3105	0.3444	0.4132	0.2893	0.2048	0.3524	0.2106	0.3169	0.3443	0.2466	0.2585	0.3256	0.2928	0.3807	0	0	0

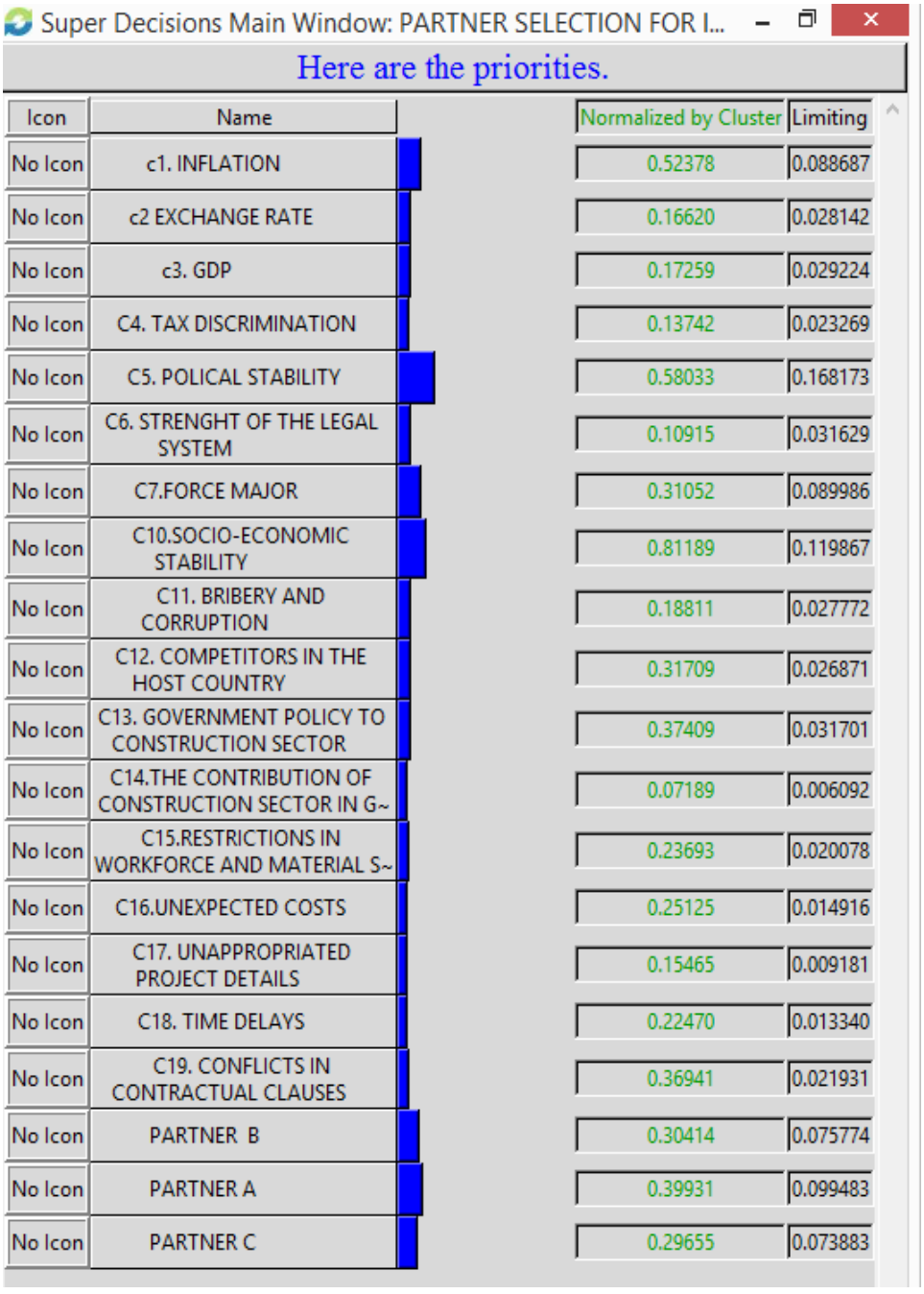
Table 6.4 Weighted Supermatrix of the Partner Selection Model for ICJVs

		1-ECONOMIC RISKS				2-POLITICAL RISKS			3-SOCIO-CULTURAL RISKS		4-INDUSTRY RELATED RISKS				5-PROJECT RELATED RISKS				ALTERNATIVES		
		C1	C2	C3	C4	C5	C6	C7	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	PARTNER B	PARTNER A	PARTNER C
1-ECONOMIC RISKS	C1	0	0.25	0	0	0.1834	0	0	0.1896	0.25	0	0	0	0.1074	0.0835	0	0.1192	0.0843	0.041781	0.061812	0.06757
	C2	0	0	0	0	0	0	0	0.0683	0	0	0	0	0.1426	0.0654	0	0.0808	0.1157	0.06404	0.038504	0.05159
	C3	0	0	0	0	0.0666	0	0	0.0754	0	0	0	0	0	0	0	0	0	0.029613	0.025177	0.05724
	C4	0	0	0	0	0	0	0	0	0	0.3333	0	0	0	0.0177	0	0	0	0.064566	0.074508	0.02359
2-POLITICAL RISKS	C5	0.2528	0.1955	0.2586	0	0	0.3957	0.5	0.2702	0.25	0	0.2739	0	0	0	0	0	0.0864	0.100095	0.103862	0.09962
	C6	0	0	0	0	0	0	0	0	0	0.3333	0	0	0	0.1133	0	0	0.0778	0.076235	0.075726	0.08076
	C7	0.0805	0.0545	0.0747	0.3333	0.25	0.1043	0	0.0632	0	0	0.0594	0.3333	0.25	0.0534	0	0.2	0.0358	0.023671	0.020412	0.01962
3-SOCIO-CULTURAL RISKS	C10	0.3333	0.25	0.3333	0	0.25	0	0	0	0.25	0	0	0	0	0.1667	0	0	0	0.116248	0.087704	0.06121
	C11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.083752	0.112296	0.13879
4-INDUSTRY RELATED RISKS	C12	0	0	0	0	0	0	0	0	0	0	0.3333	0	0	0	0	0	0	0.047754	0.069804	0.0777
	C13	0	0	0	0.3333	0	0	0	0	0	0	0	0.3333	0.25	0.1119	0	0	0.0658	0.085494	0.03922	0.04606
	C14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04705	0.01387	0.01552
	C15	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0547	0	0.2	0.1342	0.019703	0.077106	0.06072
5-PROJECT RELATED RISKS	C16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0538	0.0838	0.043447	0.05072	0.05446
	C17	0	0	0	0	0	0	0	0	0	0	0	0	0	0.071	0	0.0635	0.056	0.022087	0.020435	0.03165
	C18	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0564	0	0	0.0602	0.054842	0.036	0.04659
	C19	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0393	0	0.0828	0	0.079623	0.092845	0.0673
ALTERNATIVES	PARTNER B	0.071	0.039	0.0698	0.0791	0.0572	0.0677	0.1621	0.19	0.042	0.1324	0.1104	0.1211	0.0612	0.041	0.2829	0.08	0.0411	0	0	0
	PARTNER A	0.1705	0.1314	0.1549	0.1507	0.1067	0.2257	0.1932	0.075	0.1199	0.1307	0.1173	0.0975	0.1271	0.0826	0.3915	0.0615	0.0828	0	0	0
	PARTNER C	0.0918	0.0796	0.1086	0.1035	0.0861	0.2066	0.1446	0.0683	0.0881	0.0702	0.1056	0.1148	0.0617	0.0431	0.3256	0.0586	0.0761	0	0	0

Table 6.5 Limit matrix of the Partner Selection Model for ICJVs

		1-ECONOMIC RISKS				2-POLITICAL RISKS			3-SOCIO-CULTURAL RISKS		4-INDUSTRY RELATED RISKS				5-PROJECT RELATED RISKS				ALTERNATIVES		
		C1	C2	C3	C4	C5	C6	C7	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	PARTNER B	PARTNER A	PARTNER C
1-ECONOMIC RISKS	C1	0.08869	0.0887	0.08869	0.08869	0.08869	0.08869	0.0887	0.08869	0.0887	0.08869	0.0887	0.08869	0.08869	0.08869	0.08869	0.0887	0.08869	0.088687	0.088687	0.088687
	C2	0.02814	0.0281	0.02814	0.02814	0.02814	0.02814	0.0281	0.02814	0.0281	0.02814	0.0281	0.02814	0.02814	0.02814	0.02814	0.0281	0.02814	0.028142	0.028142	0.028142
	C3	0.02922	0.0292	0.02922	0.02922	0.02922	0.02922	0.0292	0.02922	0.0292	0.02922	0.0292	0.02922	0.02922	0.02922	0.02922	0.0292	0.02922	0.029224	0.029224	0.029224
	C4	0.02327	0.0233	0.02327	0.02327	0.02327	0.02327	0.0233	0.02327	0.0233	0.02327	0.0233	0.02327	0.02327	0.02327	0.02327	0.0233	0.02327	0.023269	0.023269	0.023269
2-POLITICAL RISKS	C5	0.16817	0.1682	0.16817	0.16817	0.16817	0.16817	0.1682	0.16817	0.1682	0.16817	0.1682	0.16817	0.16817	0.16817	0.16817	0.1682	0.16817	0.168173	0.168173	0.168173
	C6	0.03163	0.0316	0.03163	0.03163	0.03163	0.03163	0.0316	0.03163	0.0316	0.03163	0.0316	0.03163	0.03163	0.03163	0.03163	0.0316	0.03163	0.031629	0.031629	0.031629
	C7	0.08999	0.09	0.08999	0.08999	0.08999	0.08999	0.09	0.08999	0.09	0.08999	0.09	0.08999	0.08999	0.08999	0.08999	0.09	0.08999	0.089986	0.089986	0.089986
3-SOCIO-CULTURAL RISKS	C10	0.11987	0.1199	0.11987	0.11987	0.11987	0.11987	0.1199	0.11987	0.1199	0.11987	0.1199	0.11987	0.11987	0.11987	0.11987	0.1199	0.11987	0.119867	0.119867	0.119867
	C11	0.02777	0.0278	0.02777	0.02777	0.02777	0.02777	0.0278	0.02777	0.0278	0.02777	0.0278	0.02777	0.02777	0.02777	0.02777	0.0278	0.02777	0.027772	0.027772	0.027772
4-INDUSTRY RELATED RISKS	C12	0.02687	0.0269	0.02687	0.02687	0.02687	0.02687	0.0269	0.02687	0.0269	0.02687	0.0269	0.02687	0.02687	0.02687	0.02687	0.0269	0.02687	0.026871	0.026871	0.026871
	C13	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.0317	0.031701	0.031701	0.031701
	C14	0.00609	0.0061	0.00609	0.00609	0.00609	0.00609	0.0061	0.00609	0.0061	0.00609	0.0061	0.00609	0.00609	0.00609	0.00609	0.0061	0.00609	0.006092	0.006092	0.006092
	C15	0.02008	0.0201	0.02008	0.02008	0.02008	0.02008	0.0201	0.02008	0.0201	0.02008	0.0201	0.02008	0.02008	0.02008	0.02008	0.0201	0.02008	0.020078	0.020078	0.020078
5-PROJECT RELATED RISKS	C16	0.01492	0.0149	0.01492	0.01492	0.01492	0.01492	0.0149	0.01492	0.0149	0.01492	0.0149	0.01492	0.01492	0.01492	0.01492	0.0149	0.01492	0.014916	0.014916	0.014916
	C17	0.00918	0.0092	0.00918	0.00918	0.00918	0.00918	0.0092	0.00918	0.0092	0.00918	0.0092	0.00918	0.00918	0.00918	0.00918	0.0092	0.00918	0.009181	0.009181	0.009181
	C18	0.01334	0.0133	0.01334	0.01334	0.01334	0.01334	0.0133	0.01334	0.0133	0.01334	0.0133	0.01334	0.01334	0.01334	0.01334	0.0133	0.01334	0.01334	0.01334	0.01334
	C19	0.02193	0.0219	0.02193	0.02193	0.02193	0.02193	0.0219	0.02193	0.0219	0.02193	0.0219	0.02193	0.02193	0.02193	0.02193	0.0219	0.02193	0.021931	0.021931	0.021931
ALTERNATIVES	PARTNER B	0.07577	0.0758	0.07577	0.07577	0.07577	0.07577	0.0758	0.07577	0.0758	0.07577	0.0758	0.07577	0.07577	0.07577	0.07577	0.0758	0.07577	0.075774	0.075774	0.075774
	PARTNER A	0.09948	0.0995	0.09948	0.09948	0.09948	0.09948	0.0995	0.09948	0.0995	0.09948	0.0995	0.09948	0.09948	0.09948	0.09948	0.0995	0.09948	0.099483	0.099483	0.099483
	PARTNER C	0.07388	0.0739	0.07388	0.07388	0.07388	0.07388	0.0739	0.07388	0.0739	0.07388	0.0739	0.07388	0.07388	0.07388	0.07388	0.0739	0.07388	0.073883	0.073883	0.073883

The limiting matrix is the result of this network including importance weights of the determined risk criteria on partner selection for ICJVs. These importance weights also represent the priorities of the determined risk criteria as well as the priorities of the potential partners. The priorities of the determined risk criteria and the priorities of the alternatives are illustrated in Figure 6.1.



Icon	Name	Normalized by Cluster	Limiting
No Icon	c1. INFLATION	0.52378	0.088687
No Icon	c2 EXCHANGE RATE	0.16620	0.028142
No Icon	c3. GDP	0.17259	0.029224
No Icon	C4. TAX DISCRIMINATION	0.13742	0.023269
No Icon	C5. POLICAL STABILITY	0.58033	0.168173
No Icon	C6. STRENGHT OF THE LEGAL SYSTEM	0.10915	0.031629
No Icon	C7.FORCE MAJOR	0.31052	0.089986
No Icon	C10.SOCIO-ECONOMIC STABILITY	0.81189	0.119867
No Icon	C11. BRIBERY AND CORRUPTION	0.18811	0.027772
No Icon	C12. COMPETITORS IN THE HOST COUNTRY	0.31709	0.026871
No Icon	C13. GOVERNMENT POLICY TO CONSTRUCTION SECTOR	0.37409	0.031701
No Icon	C14.THE CONTRIBUTION OF CONSTRUCTION SECTOR IN G~	0.07189	0.006092
No Icon	C15.RESTRICTIONS IN WORKFORCE AND MATERIAL S~	0.23693	0.020078
No Icon	C16.UNEXPECTED COSTS	0.25125	0.014916
No Icon	C17. UNAPPROPRIATED PROJECT DETAILS	0.15465	0.009181
No Icon	C18. TIME DELAYS	0.22470	0.013340
No Icon	C19. CONFLICTS IN CONTRACTUAL CLAUSES	0.36941	0.021931
No Icon	PARTNER B	0.30414	0.075774
No Icon	PARTNER A	0.39931	0.099483
No Icon	PARTNER C	0.29655	0.073883

Figure 6.1 Snapshot of SUPER DECISIONS showing the priorities

Political risks, socio-economic risks, force majeure, inflation, government policy to construction sector and the strength of the legal system are found to be most important determinants of the partner selection model due to country risk factors. Ratings of alternatives also can be achieved through limit matrix in SUPER DECISIONS. The ratings of the alternatives including *PARTNER A, PARTNER B* and *PARTNER C* is illustrated in Figure 6.2.

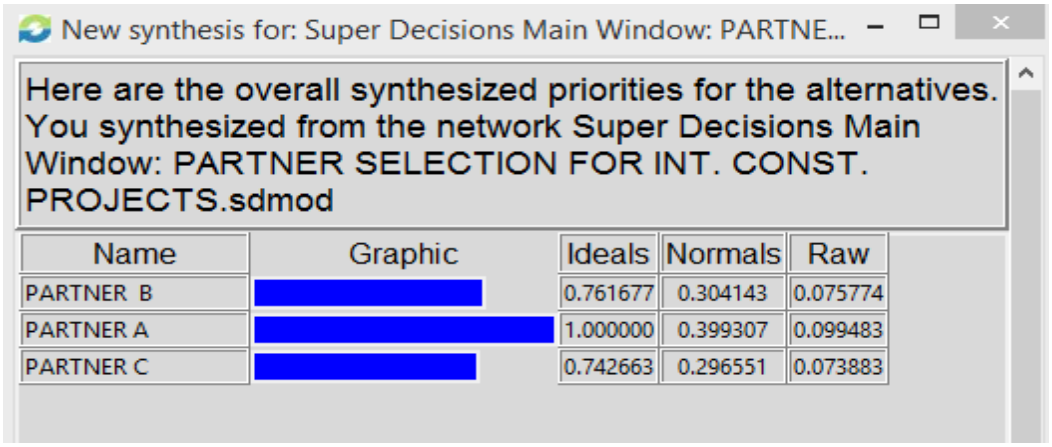


Figure 6.2 Snapshot of SUPER DECISIONS showing the ratings of the alternatives

The results of the model are also explained by the percentage of the risk criteria and the preference of the potential partner in Table 6.6. The limiting priority or importance percentage for each risk criteria is the result of the limit matrix that is derived through the partner selection model for ICVJ due to host country related risk factors.

Table 6.6 The importance of risk criteria and the preference of partners

Cluster	Criteria	Limiting priority or importance (%)	Normalized by cluster (%)
Economic Risks	C1. Inflation	8,87%	52,39%
	C2. Exchange rate risk	2,81%	16,59%
	C3. GDP(Gross Domestic Product)	2,92%	17,24%
	C4. Tax discrimination	2,33%	13,76%
Political Risks	C5. Political stability	16,82%	58,04%
	C6. Strength of the legal system	3,16%	10,90%
	C7. Force Majeure	9,00%	31,05%
Socio-cultural Risks	C10. Socio-economic stability	11,99%	81,17%
	C11. Bribery and corruption	2,78%	18,82%
Industrial Risks	C12. Competitors in the host country	2,69%	31,79%
	C13. Government policy to construction sector	3,17%	37,47%
	C14. The contribution of construction sector in GDP	0,60%	7,09%
	C15. Restrictions in workforce and material supply	2,00%	23,64%
Project Risks	C16. Unexpected costs	1,49%	25,16%
	C17. Improper drawings	0,91%	15,37%
	C18. Time delays	1,33%	22,46%
	C19.Conflicts in contractual clauses (incomplete contract clauses)	2,19%	36,99%
ALTERNATIVES	Partner-A	9,94%	**39,76%**
	Partner-B	7,57%	**30,28%**
	Partner-C	7,38%	**29,52%**

Partner A is found to be the most appropriate partner due the developed model. *Partner A* is the potential partner whom has more experience than the others. Partner A has sufficient financial capacity where *Partner C* has insufficient financial capacity. On the other hand Partner A has the less technological know-how among the other potential partners. *Partner A* represents the potential partner whom has not has previous collaborations but has a similar culture. *Partner A* is a local firm having relations with government less than the *Partner C*. The characteristics of the potential partners are given in Table 5.4.

6.3 Discussions

The results of the developed model suggest that host country related risk factors are the most vital parameters in partner selection for international construction projects

with the %60 among other risk clusters (Table 6.6). Political stability, socio-economic stability, force majeure, and inflation are found to be the most effective risk factors on partner selection for ICJVs due to host country related risk factors. The developed model allows decision makers to make a selection among potential partners as well as allows to obtain relative weights of the risk factor that are the determinants of partner selection for ICJVs.

Political stability has effects on 9 of the risk criterion that are defined in the framework of the model is found to be the most important risk criterion in the developed model. The relative importance weight of political stability on partner selection for ICJVs is 0.168173 where the relative importance weight of socio-economic stability is 0.119867. Political stability is found be effective on economic risks factors, other political risks factors, and socio-economic risks factors as well as affected by these risk factors. Besides, political stability has also effects on government policy to construction sector and conflicts in contractual clauses.

The relation of the determined risk criteria can also be seen in the framework of the study and the network of the model. The dependencies between the determined risk criteria are the main reason of applying ANP in this multi-criteria decision making problem. Economic crisis emerges due to the problems in the political stability. As a result of the political and economic crisis, there are problems in the socio-economic stability. If the selected partner cannot assess and reduce the effects of these risks, ICJVs usually come to an end.

Socio-economic stability is the second important risk criterion that has effects on partner selection in the developed model. Socio-economic stability is found to affect the economic risks factors and political stability. Consequently, political stability and socio-economic stability has a cross relation.

Force majeure is the third important risk criterion due to the priority results of the developed model. Force majeure is found to have effects on 13 risk criteria due to the relation matrix. The relative importance weight of force majeure is 0.089986. Inflation has the relative importance weight of 0.088687 is following force majeure. Having effects on 8 of the other risk criteria, inflation is found to be the fourth important risk criterion according to the results of the priorities of the developed partner selection

model.

Project related risk factors and industry related risk factors are found to be least important risk criteria due to the results of the develop partner selection model by applying ANP approach. These risk criteria are also found to have inner dependency. Industry related risk factors have found to be effective on industry related risk factors and project related risk factors where project related risk factors have effects only on project related risks. Only government policy to construction sector is found to affect tax discrimination in the host country and time delays of the construction process is found to affect government policy to construction sector.

As a result; the hypothesize of the dissertation that is proposing that host country related risk factors should be considered in a partner selection model for ICJVs is verified both by the relation matrix and the results of the developed model.

Cross cultural management in international construction is one of the main research areas of construction management literature. The importance of cultural fit on the performance of ICJVs has been mentioned by many researchers. But, cultural differences and language barrier are excluded in this model due to the relation matrix that is illustrated in table 1. Cultural fit between partners and language barrier should be included in case of their importance.

Partner A is selected as the most appropriate partner among three partners. *Partner A* is the most experienced partner with a sufficient financial capacity. That’s why; sufficient financial capacity and experience in global construction market can be stated as one of the most important partner selection criteria in order to avoid the effects of host country related risk factors. On the other hand, discrimination in firms' cultures has direct effects on the performance of partnerships. Cultural differences cause misunderstandings that often make the partnerships to come to an end. Consequently, *partner A*; whom has a similar firm culture was selected as the most appropriate partner.

International contractors usually get involved in projects in less developed countries. As a result of this situation; *Partner A* is selected as the most proper partner among the other potential partners has less technological know-how than the others (Table 6).

Because, construction firms usually establish partnerships with local partners in order to obtain good relations with the host government in practice. However, their technological know-how is the reason of their competitiveness in a less developed foreign country.

On the other hand, international contractors usually tend to collaborate with a partner whom has similar characteristics to *Partner C* due to its good relations with government in practice. The degree of the relationship with government is the main reason of their decision in order to regulate the relations with government and reduce political risks and bureaucracy. A partner who has similar characteristics to *Partner C* is called as a "silent partner" whom has no action on construction and construction management process.

Construction firms usually prefer to lean on a local partner whom has good relations with the government due to the dynamic and complex environments of the developing countries. Since, selecting a partner shouldn't be based upon only on one criterion, the attitude of firms on selecting a "silent partner" may cause further problems and loses. On the other hand, discrimination in firms' cultures has direct effects on the performance of partnerships. Cultural differences cause misunderstandings that often make the partnerships to come to an end. Consequently, *partner A,* whom has a similar firm culture, was selected as the most appropriate partner.

The findings of the study also present that a contractor should choose *Partner B* rather than *Partner C* even though *Partner C* is a local partner whom has relations with government with a similar culture. *Partner B* is a foreign firm whom has previous relations with the firm. The insufficient financial capacity and the experience of the *Partner C* in global construction market are the main reasons of this choice. Consequently, experience of the potential partners in global construction market and sufficient financial capacity is found to be one of the most important partner selection criteria for ICJVs due to the results of this study. The characteristics of potential partners that are based on a fictitious scenario are defined in table 6 in detail.

Political stability with the highest relative weight is found to be effective on every potential partner due to the results of the developed model. International contractors

prefer to establish an ICJV with *Partner A* in case of risks due to political stability according to the results of the model as it can be seen in Figure 6.3. In the super decisions it is defined as *Partner A* is 1.7804 times more important than *Partner B.* This means that experts prefer to work with *Partner A* 1.7804 times more than *Partner B.*

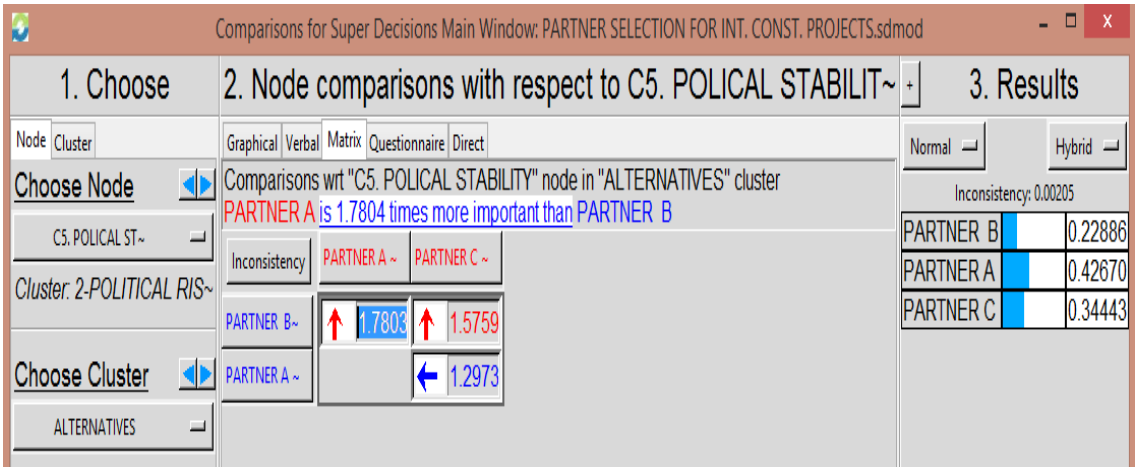


Figure 6.3 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to political stability in the host country

Force majeure is found to be the least important risk criterion among political stability and strength of legal system in the host country (Figure 6.1). Firms prefer to establish a venture with *Partner A* in order to reduce the risks that will occur due to force majeure and the strength of legal system in the host country. The results of this choice is as presented in Figure 6.4 and Figure 6.5

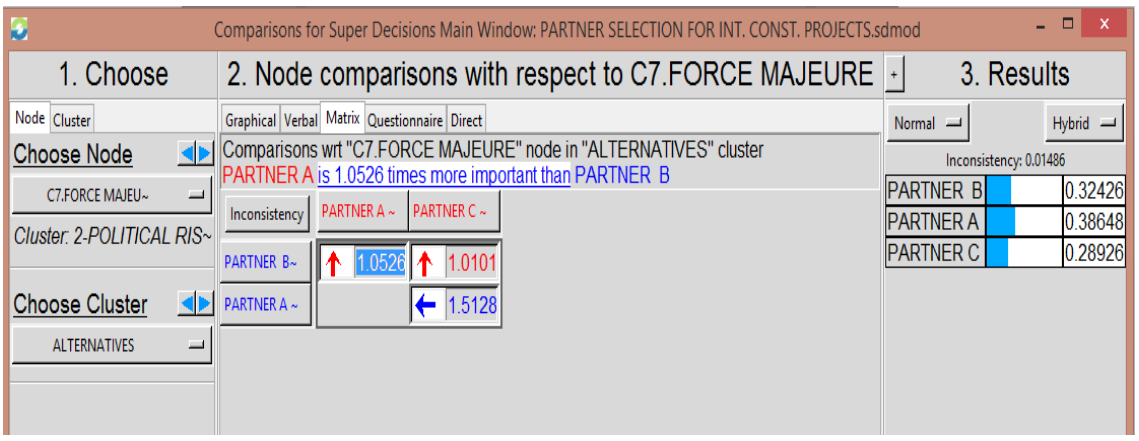


Figure 6.4 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to force majeure in the host country

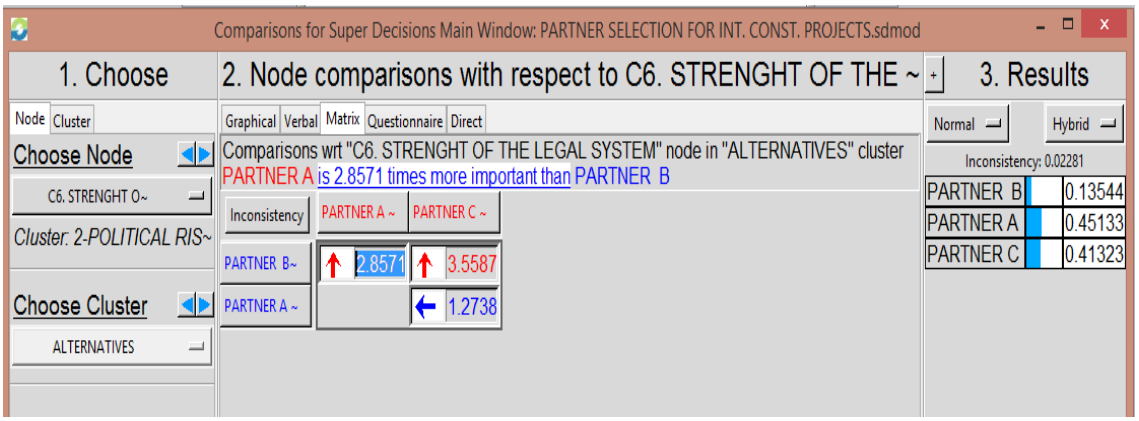


Figure 6.5 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to strength of legal system in the host country

Changes in the socio-economic environment of the host country could have serious effects on the local firms rather than another foreign firm. Consequently, executives prefer to work with *Partner B* due to the socio-economic stability in the host country due to the results of the model (Figure 6.6).

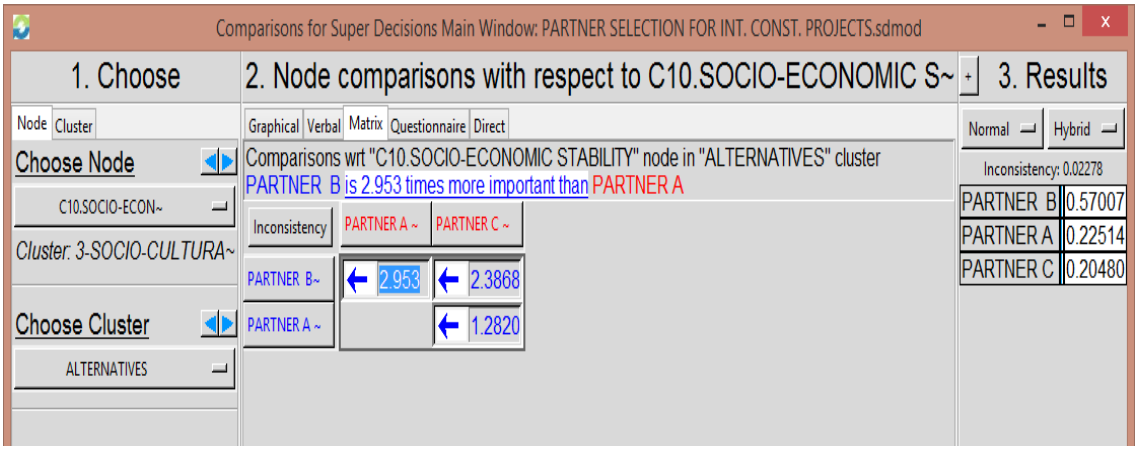


Figure 6.6 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to socio-economic stability in the host country

Firms choose to establish a partnership with *Partner A* due to the existence of bribery and corruption in the host country, since *Partner A* is a local firm and can succeed in dealing with such problems. The result of the model showing the choice of executives due to bribery and corruption in the host country is as presented in Figure 6.7.

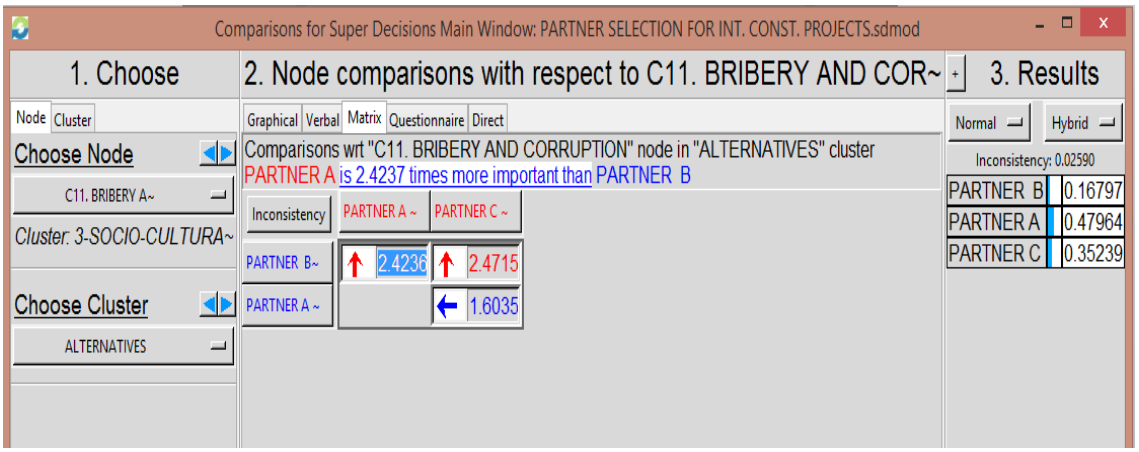


Figure 6.7 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to socio-economic stability in the host country

Inflation is found to be more effective on *Partner C* more than *Partner A* and *Partner B.* Firms choose to adopt a partnership with *Partner A* in the presence of inflation in the host country as can be seen in Figure 6.8.

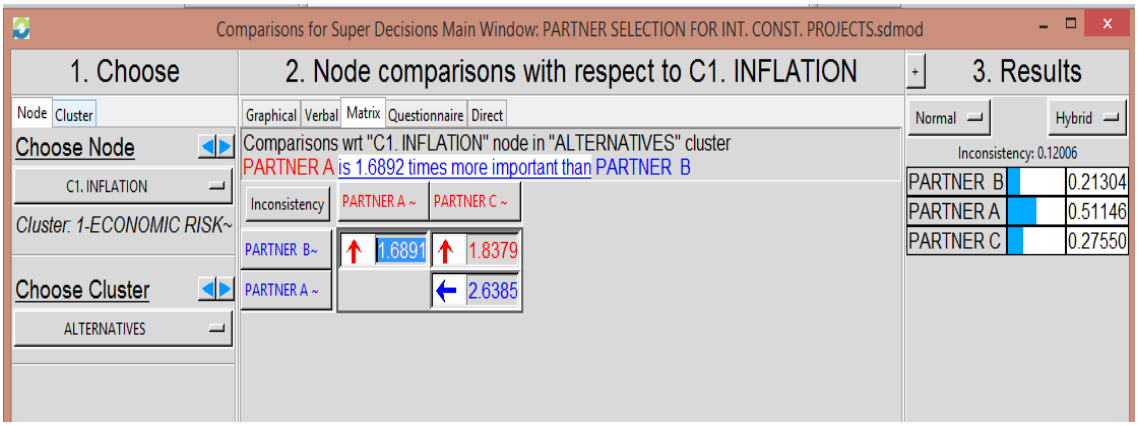


Figure 6.8 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to inflation in the host country

Executives also choose to adopt a partnership with *Partner A* in the presence of exchange rate risk, GDP and tax discrimination in the host country as presented in Figure 6.9, 6.10 and 6.11.

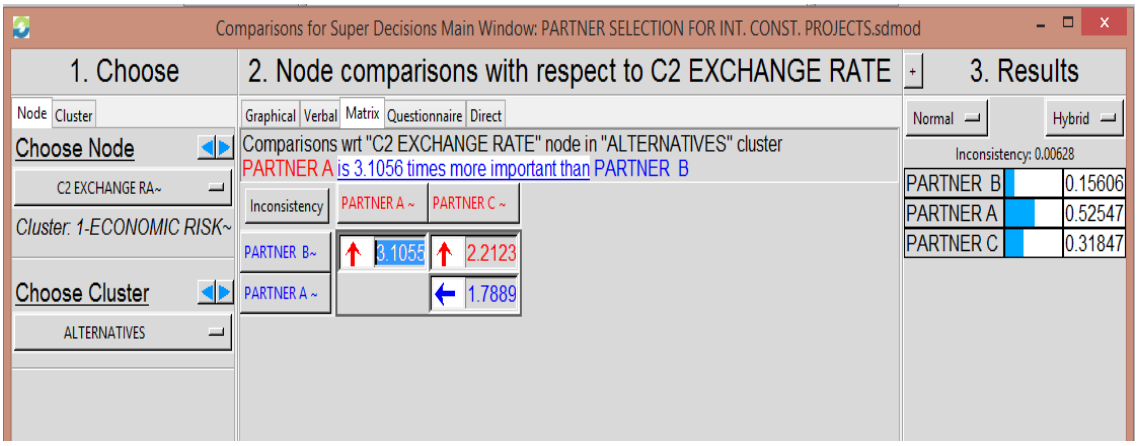


Figure 6.9 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to exchange rate in the host country

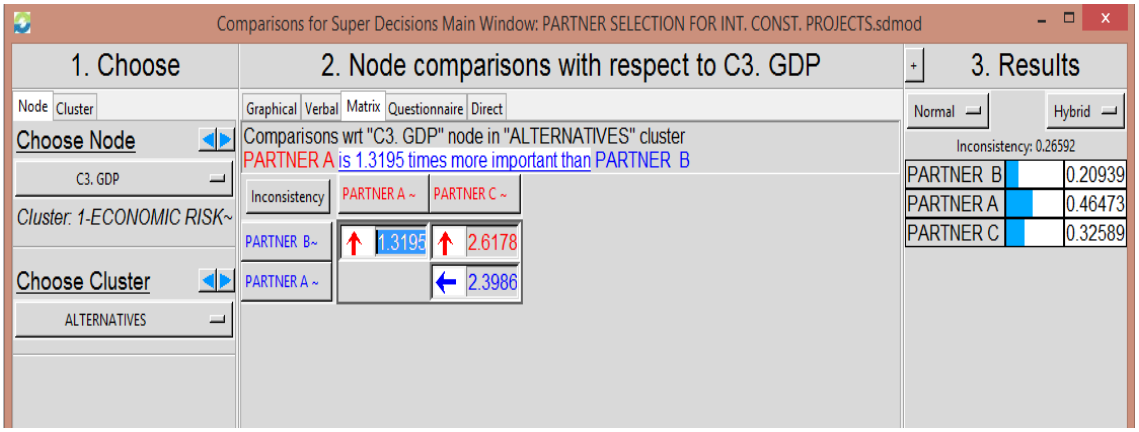


Figure 6.10 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to GDP in the host country

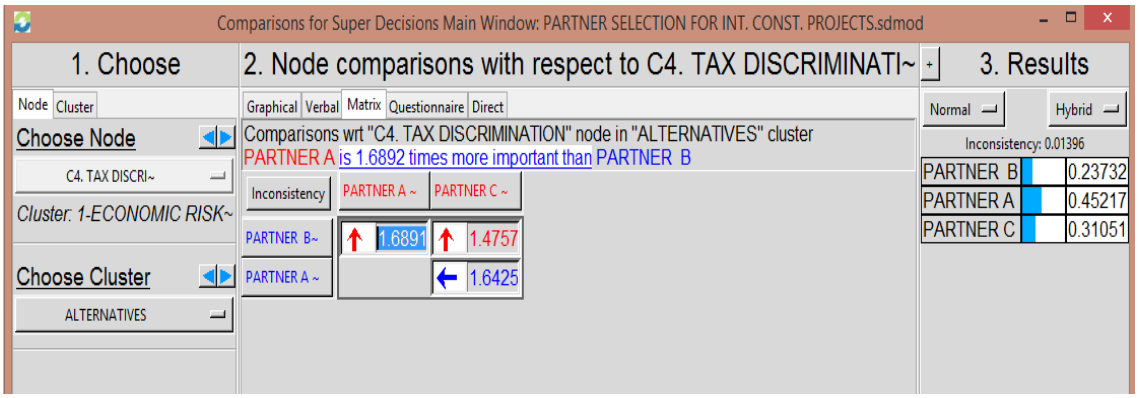


Figure 6.11 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to tax discrimination in the host country

Government policy to construction sector is found to be the most important industry related risk factor due the priorities of the model (Figure 6.1). *Partner B* is found to be the one that is most affected by the policy of government to construction sector according to the results of the model. Firms choose to establish a venture with *Partner A* in the existence of this risk since *Partner A* is a local firm having relations with the government (Figure 6.12).

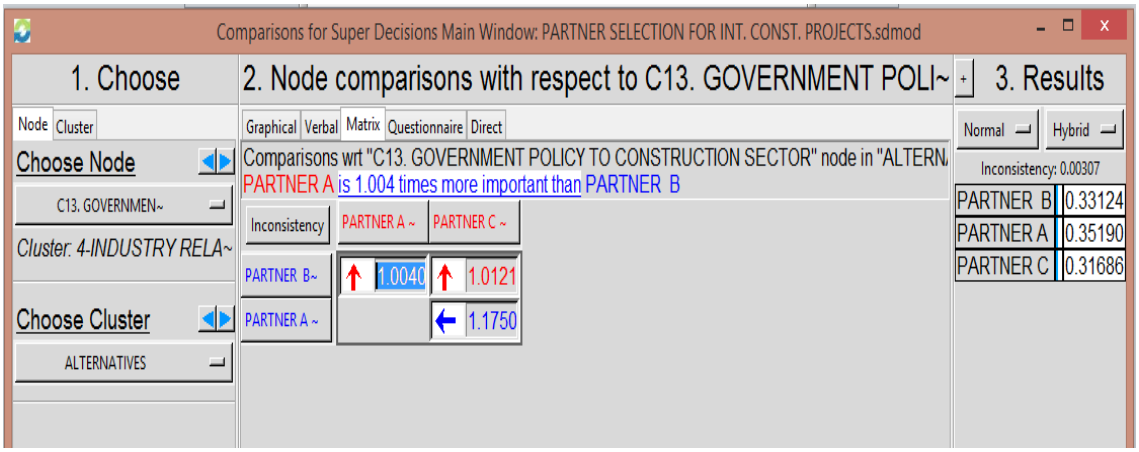


Figure 6.12 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to government policy to construction sector in the host country

Conflicts in contractual clauses are found to be the most important risk criteria in the project related risk cluster. However, improper drawings are found to be the least important risk criterion in the project related risk cluster (Figure 6.1). Since, international contractors choose to make the project drawings by their staff; they usually tend to eliminate this risk and don't pay attention in the technical knowledge of the potential partners. That's why; firms choose to work with *Partner A* as can be seen in Figure 6.13. In addition, executives also prefer to work with *Partner A* in the presence of conflicts in contractual clauses as well as in the presence of improper drawings as presented in Figure 6.14.

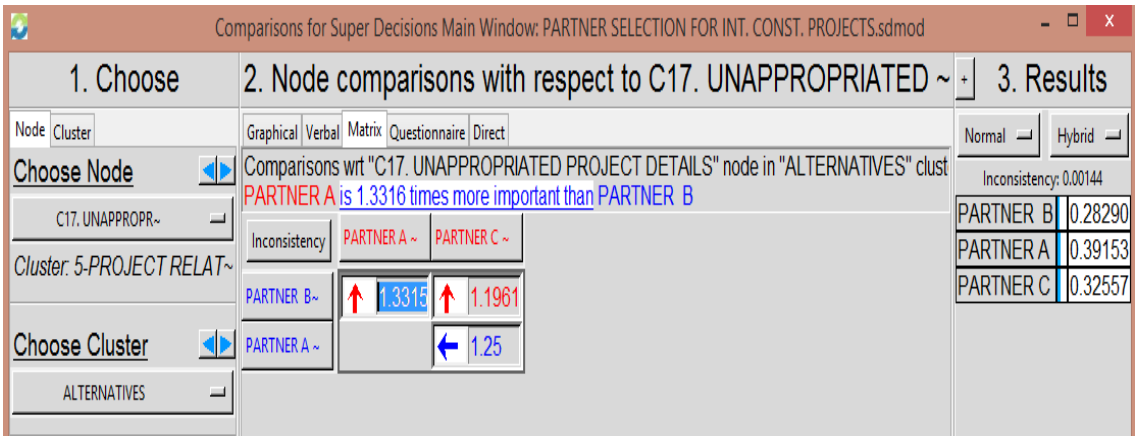


Figure 6.13 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to improper drawings

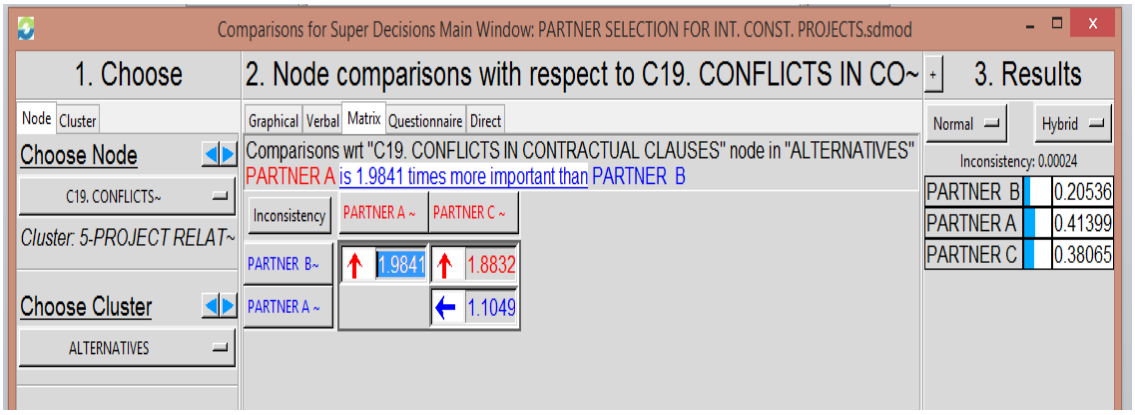


Figure 6.14 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to conflicts in contractual clauses

On the other hand; executives prefer to establish a venture with *Partner B* to avoid time delays and to reduce the effects of competitors in the host country. In addition, executives also prefer to work with *Partner B* due to the contribution of construction sector in GDP of the host country. The choices of experts are as presented in Figure 6.15 and 6.16.

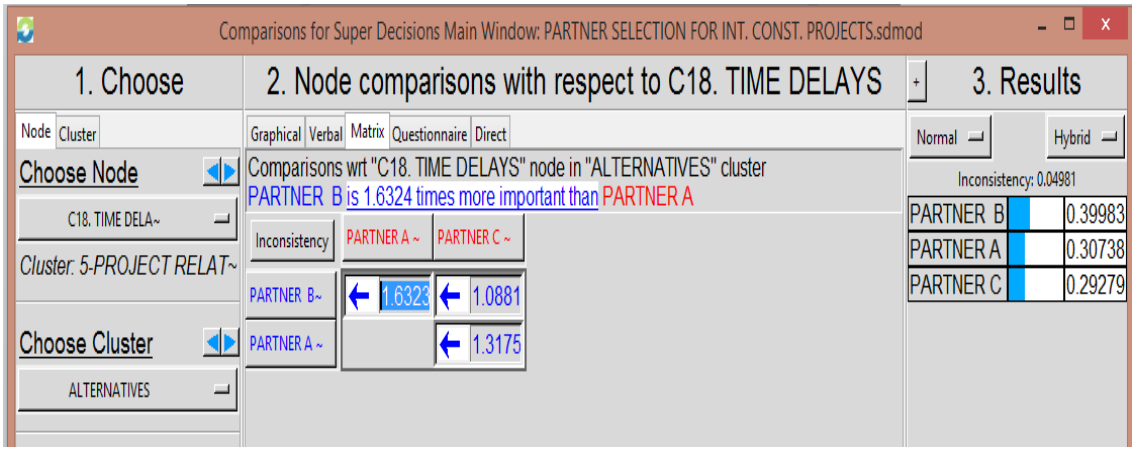


Figure 6.15 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to time delays

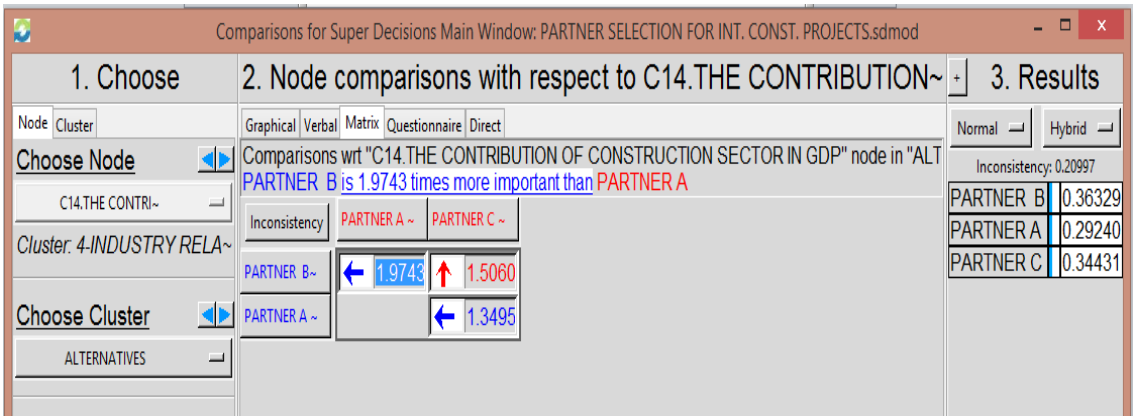


Figure 6.16 Snapshot of SUPER DECISIONS showing the choice of experts among potential partners due to the contribution of construction sector in GDP

CHAPTER 7

CONCLUSIONS

This final Chapter presents an expansion view of the proposed partner selection model for ICJVs due to host country related risk factors. The main findings of the research and the contributions of the proposed model to the literature on ICJVs are also explained in this chapter. Finally, this chapter covers recommendations for further work.

7.1 Conclusions

The main objective of this research is to develop a partner selection model for ICJVs due to host country related risk factors since this study postulated that host country related risk factors have major effects on partner selection for ICJVs. Host country related risk factors are adopted in three main clusters including; economic, political and socio-cultural risks. Contrary with the hypothesis of the study; industry related risk factors and project related risk factors are determined as the other risk factors in partner selection model for ICJVs, since these factors have effects both on domestic and international construction industry.

The risk factors (sub-criteria) of each cluster are stated through literature review. Partner selection model for ICJVs due to host country related risk factors is developed by applying ANP approach within the context of this study. The interdependency between risk criteria and clusters is the main reason of using ANP within the context of this study. In an example; economic risks have effects on political risks as well as political risks have effects on economic risks as postulated in this study. The decision of selecting the appropriate partner among potential candidates mostly depends on the intuition of the executives that can be defined subjective. ANP allows defining the

subjective decisions of executives in numerical degrees and achieving the priorities of the determined criteria that are related to the multi-criteria decision making problem. Briefly, ANP also allows achieving the results according to the decisions of multiple executives.

A two phases of survey is conducted in order to develop the partner selection model for ICJVs due to host country related risk factors. Each phase of survey is completed with twelve respondents whom are the professionals working for Turkish international contractors. The international contractors are selected from the ENR top list. The relation matrix that is presenting the interrelations of the risk factors is the result of the first survey. Consistent with the hypothesis of this study, host country related risk factors have found to have effects on industry related risk factors as well as project related risk factors. On the other hand; host country related risk factors have also effects on each other. The results of the first survey also verified the conceptual model of the study that is presented in Figure 5.1.

Cultural difference is one of the most cited risk criteria due to management science literature and construction management literature. However, cultural difference is found neither to have effects on any of the risk criteria nor have influenced by any of the risk criteria. The relation matrix is developed due the opinions of Turkish executives. Consequently, this situation represents the Turkish executives' point of view.

The appropriate partner among three potential candidates is selected after defining the second survey data in SUPER DECISIONS. Partner A is selected as the most appropriate partner among the other candidates. Partner selection model development is explained step by step in Chapter 5. The priorities of the risks are also achieved through the developed model. Political stability that is the most cited host country related risk criterion is also found out to be the most important risk on partner selection. Socio-economic stability, force majeure and inflation are found to be the following important risks that have effects on partner selection for ICJVs. Project related risk factors are found to be the least important factors that have effects on partner selection for ICJVs.

The developed partner selection model due to host country related risk factors is based on the selection of the appropriate partner among three candidate partners. It is also possible to make a selection among four or more candidates in another case. Using the proposed model, construction companies should select the appropriate partner in a specific country due to host country related risk factors. This multi-criteria decision making model also allows company managers to make their decisions depending on their own point of view and experience by making pairwise comparisons of the determined risk factors. On the other hand, the flexibility of the proposed model also allows construction companies to add or remove a criterion if needed for a specific country. Consequently, industry practitioners can apply ANP approach to determine the priorities of their own set of selection criteria when they are deciding to make a selection among potential partners in order to establish an ICJV in a specific country or use the determined importance weight of each risk factor. The developed partner selection model for ICJVs due to host country related risk factors is not dealing with a specific country. As a result, the derived relative weights of the determined risk criteria are not referring a specific country.

In addition a case study is conducted with three executives taking Russia as an example. The executives have experience in Russia more than 15 years. The results of this case are common to the developed model. Political stability, socio-economic stability, force majeure and inflation are found to be the most important risk factors. Partner A is also found to be the most appropriate partner to establish a venture in Russia. Finally, it is also stated by the executives that; it is vital to know every detail of the project and the contract.

This dissertation has some limitations due to the process of internationalization. It focuses only on the partner selection process. It is not dealing with the decision of entering into a specific country due to host country related risk factors. It focuses only on appropriate partner selection process. As it mentioned before; an ICJV is a form of joint venture if at least one of the participating firms is headquartered outside the venture's country of operation. International contractors establish ICJVs with a local partner due to some legal restrictions in the host country. However, international

contractors also adopt ICJVs with another foreign partner due to gain technological resources of the partners. Consequently, the developed partner selection model consists of both local and foreign candidate partners.

The data collection process is the other limitation of this dissertation. The questionnaire is administered to the executives of Turkish contractors. The contractors also selected amongst the international contractors whom have experience of superstructure building. International contractors whom are usually participating in infrastructure projects are not included in this study.

7.2 Recommendations for Further Work

The developed partner selection model due to host country related risk factors utilized the experiences and the point of Turkish international contractor's view that are establishing in superstructure building. Some further work recommendations are explained below;

- The model should be developed for international infrastructure projects. A comparison of partner selection criteria should be obtained for superstructure building and infrastructure sector.
- The model should be applied for the partner selection of a specific project in a specific country in order to discuss the results of the developed model.
- The model should be applied for the partner selection of similar projects in different countries. Comparisons of host country related risk factors should be determined due to the different conditions of host countries.
- The model should be applied in a partner selection decision for an ICJV in a developed country and in a less developed country in order to realize the differences.
- The proposed model could also be redeveloped with firms from different countries in order to understand the effects of cultural differences in decision making and partner selection practice.

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APPENDIX-A

SURVEY OF THE FIRST STEP

POLİMEKS İNŞAAT TAAHHÜT VE SAN. TİC. A.Ş.
Elmadağ, Askerocağı Cad.
Süzer Plaza No: 15 Kat: O2 34367
Şişli/İstanbul/TÜRKİYE 17/05/2011

Dear Mr. ÖNGÖR,

Due to globalization every sector including the construction industry has faced with high levels of competitiveness, uncertainty, and risk. Internationalization becomes one of the strategies of contractors to gain sustainable competitive advantage in global market. International construction involves uncertainties common to domestic construction projects as well as risks specific to the host country. Host country related risk factors define the level of risk. International contractors usually adopt joint ventures in order to reduce host country related risks and gain sustainable competitive advantage in global market. That's why; working with the appropriate partner is essential for the success of international construction joint ventures and the sustainable competitiveness of international contractors.

I am conducting a research on international construction business. I'll develop a partner selection model for international construction joint ventures due to host country related risk factors. Host country related risk factors, industry related risk factors and project related risk factors which are the main attributes of this model were determined thorough literature review.

A relation matrix will be developed in the first step of this. On the following page you can see all the risk criteria that are related to partner selection for international construction projects. Please put a sign (**√**) if you think the risk criterion A has an effect on risk criterion B as shown below.

	A	**B**
A		**√**
B		

Thank you for your corporation.

Yours sincerely,

Güzin AYDOĞAN (Ph.D Candidate)
Mimar Sinan Fine Arts University
aydoganguzin@hotmail.com
0 505 468 84 90 __0 212 252 16 00 -269

Assist Prof. Dr. Almula KÖKSAL (Advisor)
Yıldız Technical University

		ECONOMIC RISKS				POLITICAL RISKS			SOCIO-CULTURAL RISKS				INDUSTRY RELATED RISKS				PROJECT RELATED RISKS			
		Inflation	Exchange Rate Risk	GDP	Tax Dicrimination	Political Stability	Strength ogf legal system	Forje Majeure	Cultural differences	Language Barrier	socio-economic stability	Bribery and corruption	competitors in the host country	Government policy to construction sector	The contribution of construction sector in GDP	Restrictions in workforce and material supply	Unexpected costs	Improper drawings	Time Delays	Conflicts in contractual clauses (Incomplete contractual clauses)
ECONOMIC RISKS	Inflation																			
	Exchange Rate Risk																			
	GDP																			
	Tax Dicrimination																			
POLITICAL RISKS	Political Stability																			
	Strength ogf legal system																			
	Forje Majeure																			
SOCIO-CULTURAL RISKS	Cultural differences																			
	Language Barrier																			
	socio-economic stability																			
	Bribery and corruption																			
INDUSTRY RELATED RISKS	competitors in the host country																			
	Government policy to construction sector																			
	The contribution of construction sector in GDP																			
	Restrictions in workforce and material supply																			
PROJECT RELATED RISKS	Unexpected costs																			
	Improper drawings																			
	Time Delays																			
	Conflicts in contractual clauses (Incomplete contractual clauses)																			

APPENDIX-B

SURVEY QUESTIONS OF THE SECOND STEP

You will be asked to make relative comparisons of the risks including country risks, industrial risks and project risks which have effects on partner selection in international construction projects by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values. Example:

1	Economic risks
	Political risks

If you consider that economic risks have strong importance than political risks with respect to the stated criterion, your response will be:

5	Economic risks
	Political risks

If you consider that political risks have strong importance than economic risks with respect to the stated criterion, your response will be:

	Economic risks
5	Political risks

Yours sincerely,

Güzin AYDOĞAN (Ph.D Candidate)
Mimar Sinan Fine Arts University
aydoganguzin@hotmail.com
0 505 468 84 90 __0 212 252 16 00 -269

Assist Prof. Dr. Almula KÖKSAL (Advisor)
Yıldız Technical University

Name of the respondent:……
Years of practice in construction industry:…….
Age of the firm:…….. ……
Years of practice as an international contractor:……

The characteristics of the potential partners are given below.

Characteristics of the Potential Partners	PARTNER A	PARTNER B	PARTNER C
Experience in global construction market	20 years	15 years	10 years
Financial capacity (resources)	sufficient	sufficient	insufficient
Technological know-how	average	Excellent	well
Firms culture	similar	different	similar
Previous collaborative relations	Non-existing	existing	Non-existing
Relations with government	Existing (Medium level)	Non-existing	Existing (well)
Nationality	local	foreign	local

SECTION 1

Make a relative comparison of the following binary risks on the selection of **PARTNER A** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	C1- Inflation		C6-Strenght of the legal system
	C2- Exchange rate risk		C7- Force majeure
	C2- Exchange rate risk		C5- Political stability
	C3- GDP		C7- Force majeure

C3- GDP C4- Tax discrimination	C10- Socio-economic stability C11- Bribery and corruption
C1- Inflation C4- Tax discrimination	C12- Competitors in the host country C13-Government policy to construction industry
C5- Political stability C6- Strength of the legal system	C13-Government policy to construction industry C14-The contribution of construction industry in GDP
C14- The contribution of construction industry in GDP C15-Restrictions in workforce and material supply	C12- Competitors in the host country C15- Restrictions in workforce and material supply
C16- Unexpected costs C17- Improper drawings	C17- Improper drawings C18- Time delays
C18- Time delays C19- Conflicts in contractual clauses (uncompleted contractual clauses	C16- Unexpected costs C19- Conflicts in contractual clauses (uncompleted contractual clauses

Make a relative comparison of the following binary risks on the selection of **PARTNER B** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

C1- Inflation	C6-Strenght of the legal system
C2- Exchange rate risk	C7- Force majeure
C2- Exchange rate risk	C5- Political stability
C3- GDP	C7- Force majeure
C3- GDP	C10- Socio-economic stability
C4- Tax discrimination	C11- Bribery and corruption
C1- Inflation	C12- Competitors in the host country
C4- Tax discrimination	C13- Government policy to construction industry
C5- Political stability	C13- Government policy to construction industry
C6- Strength of the legal system	C14- The contribution of construction industry in GDP
C14- The contribution of construction industry in GDP	C12- Competitors in the host country
C15-Restrictions in workforce and material supply	C15- Restrictions in workforce and material supply

C16- Unexpected costs
C17- Improper drawings

C17- Improper drawings
C18- Time delays

C18- Time delays
C19- Conflicts in contractual clauses (uncompleted contractual clauses

C16- Unexpected costs
C19- Conflicts in contractual clauses (uncompleted contractual clauses

Make a relative comparison of the following binary risks on the selection of **PARTNER C** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

C1- Inflation C2- Exchange rate risk	C6-Strenght of the legal system C7- Force majeure
C2- Exchange rate risk C3- GDP	C5- Political stability C7- Force majeure
C3- GDP C4- Tax discrimination	C10- Socio-economic stability C11- Bribery and corruption
C1- Inflation C4- Tax discrimination	C12- Competitors in the host country C13- Government policy to construction industry
C5- Political stability C6- Strength of the legal system	C13- Government policy to construction industry C14- The contribution of construction industry in GDP
C14- The contribution of construction industry in GDP C15-Restrictions in workforce and material supply	C12- Competitors in the host country C15- Restrictions in workforce and material supply

	C16- Unexpected costs
	C17- Improper drawings

	C17- Improper drawings
	C18- Time delays

	C18- Time delays
	C19- Conflicts in contractual clauses (uncompleted contractual clauses

	C16- Unexpected costs
	C19- Conflicts in contractual clauses (uncompleted contractual clauses

SECTION 2

In the following questions you will be asked to make relative comparisons of the risk criteria with respect to the indicated risk criterion by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

Make a relative comparison of the following binary economic risks in defining the effects of them **on the political stability in the host country** by using a 1- 9 scale of importance

	C1- Inflation
	C3- GDP

Make a relative comparison of the following binary economic risks in defining the effects of them on the **socio-economic stability in the host country** by using a 1- 9 scale of importance.

	C1- - Inflation		C1- - Inflation		C2- Exchange rate risk
	C2- Exchange rate risk		C3- GDP		C3- GDP

Make a relative comparison of the following binary economic risks in defining the effects of them on the **restrictions in workforce and material supply** by using a 1- 9 scale of importance.

	C1- - Inflation
	C2- Exchange rate risk

Make a relative comparison of the following binary economic risks in defining the effects of them on the **unexpected costs of the project** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

C1- - Inflation	C2- Exchange rate risk	C1- Inflation
C2- Exchange rate risk	C4- Tax discrimination	C4- Tax discrimination

Make a relative comparison of the following binary economic risks in defining the effects of them on **the time delays of the project** by using a 1- 9 scale of importance.

C1- - Inflation
C2- Exchange rate risk

Make a relative comparison of the following binary economic risks in defining the effects of them on the **conflicts in contractual clauses (uncompleted contractual clauses) of the project** by using a 1- 9 scale of importance.

C1- - Inflation
C2- Exchange rate risk

Make a relative comparison of the following binary political risks in defining the effects of them on the **inflation in the host country** by using a 1- 9 scale of importance.

C5- Political stability
C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **exchange rate risk in the host country** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	C5- Political stability
	C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **GDP in the host country** by using a 1- 9 scale of importance.

	C5- Political stability
	C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **strength of the legal system in the host country** by using a 1- 9 scale of importance.

	C5- Political stability
	C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **socio-economic stability in the host country** by using a 1- 9 scale of importance.

	C5- Political stability
	C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **government policy to construction industry in the host country** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	C5- Political stability
	C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **unexpected costs of the project** by using a 1- 9 scale of importance.

	C6-Strenght of the legal system
	C7- Force majeure

Make a relative comparison of the following binary political risks in defining the effects of them on the **conflicts in contractual clauses (uncompleted contractual clauses) of the project** by using a 1- 9 scale of importance

	C5- Political stability
	C6- Strength of the legal system

	C5- Political stability
	C7- Force majeure

	C6- Strength of the legal system
	C7- Force majeure

Make a relative comparison of the following binary industrial risks in defining the effects of them on **the unexpected costs of the project** by using a 1- 9 scale of importance

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	C13- Government policy to construction industry
	C15- Restrictions in workforce and material supply

Make a relative comparison of the following binary industrial risks in defining the effects of them on the **conflicts in contractual clauses (uncompleted contractual clauses) of the project** by using a 1- 9 scale of importance

	C13- Government policy to construction industry
	C15- Restrictions in workforce and material supply

Make a relative comparison of the following binary project risks in defining the effects of them on the **unexpected costs of the project** by using a 1- 9 scale of importance.

	C17- Improper drawings
	C18- Time delays

	C18- Time delays
	C19- Conflicts in contractual clauses (uncompleted contractual clauses)

	C17- Improper drawings
	C19- Conflicts in contractual clauses (uncompleted contractual clauses)

Make a relative comparison of the following binary project risks in defining the effects of them on **the time delays of the project** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

C16- Unexpected costs	C16- Unexpected costs
C17- Improper drawings	C19- Conflicts in contractual clauses (uncompleted contractual clauses)

C17- Improper drawings
C19- Conflicts in contractual clauses (uncompleted contractual clauses)

Make a relative comparison of the following binary project risks in defining the effects of them on **the conflicts in contractual clauses (uncompleted contractual clauses) of the project** by using a 1- 9 scale of importance.

C16- Unexpected costs	C16- Unexpected costs
C17- Improper drawings	C18- Time delays

C17- Improper drawings
C18- Time delays

SECTION 3

In the following questions you will be asked to make relative comparisons of the potential partners with respect to the indicated risk criterion by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

Make a relative comparison of the potential partners in defining which one is more effected by **the inflation in the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **exchange rate risk in the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **GDP in the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by the **tax discrimination in the host country** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the **potential partners** in defining which one is more effected by the **political stability** in the host country by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the strength of the legal system in the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the force majeure in the host country** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by the socio-economic stability in the host country by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the bribery and corruption in the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the competitors in the host country** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the government policy to construction industry in the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the contribution of the construction industry in GDP of the host country** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the restrictions in workforce and material supply in the host country** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the unexpected costs of the project** by using a 1- 9 scale of importance.

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	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the improper drawings of the project** by using a 1- 9 scale of importance

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **the time delays of the project** by using a 1- 9 scale of importance.

1= Equal importance, 3=moderate importance, 5= strong importance 7=very strong importance, 9=extreme importance, 2, 4, 6, 8 are the intermediate values between adjacent scale values

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

Make a relative comparison of the potential partners in defining which one is more effected by **conflicts in contractual clauses (uncompleted contractual clauses) of the project** by using a 1- 9 scale of importance.

	PARTNER B		PARTNER B		PARTNER C
	PARTNER C		PARTNER A		PARTNER A

APPENDIX-C

DATA OF THE PAIRWISE COMPARISONS (SECOND SURVEY)

Pairwise comparisons of ***economic risks*** with respect to **PARTNER A**

	C1-C2	**C2-C3**	**C3-C4**	**C1-C4**
RESPONDENT 1	5	1	5	5
RESPONDENT 2	1/7	3	1/3	1/7
RESPONDENT 3	1/5	1/3	1	1/3
RESPONDENT 4	1/3	7	9	9
RESPONDENT 5	1/5	3	5	1
RESPONDENT 6	5	1/5	5	8
RESPONDENT 7	1/3	1/5	7	7
RESPONDENT 8	1/3	1/3	5	1/3
RESPONDENT 9	1/5	3	5	1/5
RESPONDENT 10	7	1/7	9	7
RESPONDENT 11	1	1	1	1
RESPONDENT 12	3	1/3	5	1/5
GEOMEAN	**0.7282**	**0.7647**	**3.4609**	**1.223**

Pairwise comparisons of ***political risks*** with respect to **PARTNER A**

	C5-C6	**C6-C7**	**C5-C7**
RESPONDENT 1	5	1/7	1/7
RESPONDENT 2	9	1/5	1/5
RESPONDENT 3	1	1	1/3
RESPONDENT 4	9	1/9	1/9
RESPONDENT 5	1	1/5	1/5
RESPONDENT 6	5	1/3	1/8
RESPONDENT 7	1/5	1/5	1/5
RESPONDENT 8	1/3	1/5	1/5
RESPONDENT 9	1/5	1/7	1/5
RESPONDENT 10	5	1/5	1/5
RESPONDENT 11	1/5	5	1/7
RESPONDENT 12	5	1/5	1/3
GEOMEAN	**1.3161**	**0.28095**	**0.18852**

Pairwise comparisons of ***socio-cultural risks*** with respect to **PARTNER A**

	C10-C11
RESPONDENT 1	1
RESPONDENT 2	5
RESPONDENT 3	1/3
RESPONDENT 4	1/9
RESPONDENT 5	1
RESPONDENT 6	1/5
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	7
RESPONDENT 10	5
RESPONDENT 11	7
RESPONDENT 12	1/7
GEOMEAN	**1.281**

Pairwise comparisons of ***industry related risks*** with respect to **PARTNER A**

	C12-C13	**C13-C14**	**C14-C15**	**C12-C15**
RESPONDENT 1	1	1/5	5	5
RESPONDENT 2	1/9	1/7	7	1/7
RESPONDENT 3	3	1	1	1
RESPONDENT 4	1/9	1/5	9	1
RESPONDENT 5	1/5	1/5	5	1
RESPONDENT 6	1/5	1/8	9	8
RESPONDENT 7	1/3	1/5	7	5
RESPONDENT 8	1/5	1/3	5	1
RESPONDENT 9	1/7	1	5	7
RESPONDENT 10	1/5	1/5	7	1
RESPONDENT 11	5	1	1	1
RESPONDENT 12	7	1/5	5	1/6
GEOMEAN	**0.4637**	**0.2918**	**4.5873**	**1.3394**

Pairwise comparisons of ***project related risks*** with respect to **PARTNER A**

	C16-C17	**C17-C18**	**C18-C19**	**C16-C19**
RESPONDENT 1	1/7	1/7	9	7
RESPONDENT 2	1/7	5	9	9
RESPONDENT 3	1	1	1	1
RESPONDENT 4	1	1	3	3
RESPONDENT 5	1	1	3	1
RESPONDENT 6	1/6	5	5	5
RESPONDENT 7	1/5	7	1/5	1/7
RESPONDENT 8	1/5	3	5	5
RESPONDENT 9	1/7	5	7	1/7
RESPONDENT 10	1/5	5	5	1/5
RESPONDENT 11	7	1	1	1
RESPONDENT 12	7	5	7	7
GEOMEAN	**0.4898**	**2.1429**	**3.1326**	**1.504**

Pairwise comparisons of ***economic risks*** with respect to **PARTNER B**

	C1-C2	**C2-C3**	**C3-C4**	**C1-C4**
RESPONDENT 1	1/5	5	5	5
RESPONDENT 2	1	5	9	9
RESPONDENT 3	3	1/3	1	1
RESPONDENT 4	7	1/9	7	1/7
RESPONDENT 5	5	1/5	5	1
RESPONDENT 6	5	1/5	5	5
RESPONDENT 7	5	1/7	1	1/3
RESPONDENT 8	1/3	1/5	3	1/3
RESPONDENT 9	3	1/3	5	5
RESPONDENT 10	1/3	1/5	3	1/3
RESPONDENT 11	1	1	1	1
RESPONDENT 12	5	7	1/6	6
GEOMEAN	**1.759**	**0.5302**	**2.498**	**1.347**

Pairwise comparisons of ***political risks*** with respect to **PARTNER B**

	C5-C6	**C6-C7**	**C5-C7**
RESPONDENT 1	1/7	1/7	1/7
RESPONDENT 2	1/5	1/9	1/9
RESPONDENT 3	1/3	1/3	1/3
RESPONDENT 4	7	1/7	1/7
RESPONDENT 5	3	1/3	1/5
RESPONDENT 6	1/9	1/5	1/5
RESPONDENT 7	1/5	1/7	1/9
RESPONDENT 8	3	1/5	1/5
RESPONDENT 9	1/3	1/5	1/3
RESPONDENT 10	1	1/3	1
RESPONDENT 11	7	1/7	7
RESPONDENT 12	1/6	8	1/7
GEOMEAN	**0.645**	**0.263**	**0.279**

Pairwise comparisons of ***socio-cultural risks*** with respect to **PARTNER B**

	C10-C11
RESPONDENT 1	1/7
RESPONDENT 2	9
RESPONDENT 3	1/3
RESPONDENT 4	1/7
RESPONDENT 5	1
RESPONDENT 6	1/5
RESPONDENT 7	1/5
RESPONDENT 8	5
RESPONDENT 9	1
RESPONDENT 10	1
RESPONDENT 11	1/5
RESPONDENT 12	8
GEOMEAN	**0.7206**

Pairwise comparisons of ***industry related risks*** with respect to **PARTNER B**

	C12-C13	**C13-C14**	**C14-C15**	**C12-C15**
RESPONDENT 1	7	1	5	1/5
RESPONDENT 2	9	1/9	9	9
RESPONDENT 3	3	1/5	5	5
RESPONDENT 4	1/7	1	7	1
RESPONDENT 5	1	1/3	5	1/5
RESPONDENT 6	6	1/6	7	1/5
RESPONDENT 7	1	1	1/3	1
RESPONDENT 8	3	1/5	5	5
RESPONDENT 9	1/3	1/3	5	1/9
RESPONDENT 10	1/5	1/5	5	1
RESPONDENT 11	1/7	1/5	3	1
RESPONDENT 12	1/7	1/7	8	1/5
GEOMEAN	**0.9661**	**0.297**	**4.4168**	**0.7647**

Pairwise comparisons of ***project related risks*** with respect to **PARTNER B**

	C16-C17	**C17-C18**	**C18-C19**	**C16-C19**
RESPONDENT 1	1/7	1/5	7	7
RESPONDENT 2	1/7	9	9	9
RESPONDENT 3	3	3	1/3	5
RESPONDENT 4	1	1	1	1
RESPONDENT 5	5	5	1	5
RESPONDENT 6	1/5	5	8	1
RESPONDENT 7	1/5	5	1	1
RESPONDENT 8	1/3	3	5	5
RESPONDENT 9	1/5	5	1/3	1
RESPONDENT 10	1	1	1	1
RESPONDENT 11	1/3	5	1/3	1/5
RESPONDENT 12	7	7	6	1/7
GEOMEAN	**0.5934**	**2.9004**	**1.6944**	**1.5704**

Pairwise comparisons of ***economic risks*** with respect to **PARTNER C**

	C1-C2	**C2-C3**	**C3-C4**	**C1-C4**
RESPONDENT 1	1/7	7	7	7
RESPONDENT 2	1/7	7	5	5
RESPONDENT 3	3	1/5	1/3	1/5
RESPONDENT 4	1/7	1/7	7	1
RESPONDENT 5	1/5	5	5	1
RESPONDENT 6	3	1/5	8	8
RESPONDENT 7	5	1/7	5	5
RESPONDENT 8	1	1	3	3
RESPONDENT 9	1/5	5	3	1/5
RESPONDENT 10	1	1/5	5	3
RESPONDENT 11	1/7	1/3	3	1/3
RESPONDENT 12	1/7	1/7	7	5
GEOMEAN	**0.467**	**0.679**	**3.972**	**1.753**

Pairwise comparisons of ***political risks*** with respect to **PARTNER C**

	C5-C6	**C6-C7**	**C5-C7**
RESPONDENT 1	5	1/7	1/7
RESPONDENT 2	1/9	1/9	1/9
RESPONDENT 3	1/5	3	5
RESPONDENT 4	1	1/7	1/7
RESPONDENT 5	1/3	1/5	1/5
RESPONDENT 6	5	1/5	1/5
RESPONDENT 7	1/5	1/7	1/9
RESPONDENT 8	1/5	1/5	1/3
RESPONDENT 9	1	1/5	1/3
RESPONDENT 10	5	1/5	1/7
RESPONDENT 11	1/9	1/3	1/9
RESPONDENT 12	6	1/8	1/8
GEOMEAN	**0.735**	**0.22**	**0.217**

Pairwise comparisons of ***socio-cultural risks*** with respect to **PARTNER C**

	C10-C11
RESPONDENT 1	1
RESPONDENT 2	9
RESPONDENT 3	3
RESPONDENT 4	1/7
RESPONDENT 5	1/3
RESPONDENT 6	1/3
RESPONDENT 7	7
RESPONDENT 8	5
RESPONDENT 9	5
RESPONDENT 10	5
RESPONDENT 11	7
RESPONDENT 12	7
GEOMEAN	**2.2665**

Pairwise comparisons of ***industry related risks*** with respect to **PARTNER C**

	C12-C13	**C13-C14**	**C14-C15**	**C12-C15**
RESPONDENT 1	7	1/7	7	7
RESPONDENT 2	9	1/9	7	7
RESPONDENT 3	1/3	3	1/3	1/5
RESPONDENT 4	1/7	1/7	7	1
RESPONDENT 5	1/5	1/3	3	1/5
RESPONDENT 6	1/5	1/5	8	1
RESPONDENT 7	7	1/9	7	5
RESPONDENT 8	1	1	3	1/5
RESPONDENT 9	1/7	1/3	5	5
RESPONDENT 10	1/5	1/5	5	1
RESPONDENT 11	1/7	1	1/3	1/7
RESPONDENT 12	1/7	1/6	7	1/7
GEOMEAN	**0.5299**	**0.3013**	**3.4985**	**0.8745**

Pairwise comparisons of ***project related risks*** with respect to **PARTNER C**

	C16-C17	**C17-C18**	**C18-C19**	**C16-C19**
RESPONDENT 1	1	1	7	7
RESPONDENT 2	5	5	5	5
RESPONDENT 3	1/5	1/5	1/3	1/5
RESPONDENT 4	1	1	5	1
RESPONDENT 5	1/5	5	1/5	1/5
RESPONDENT 6	5	1/5	5	5
RESPONDENT 7	1/5	7	1/7	5
RESPONDENT 8	1/3	3	1/3	3
RESPONDENT 9	1/5	5	1	1/5
RESPONDENT 10	1/5	5	5	1/5
RESPONDENT 11	1/5	3	3	1/5
RESPONDENT 12	7	1/6	5	6
GEOMEAN	**0.6276**	**1.5907**	**1.56**	**1.1443**

Pairwise comparison of ***inflation and GDP*** with respect to **political stability in the host country.**

	C1-C3
RESPONDENT 1	5
RESPONDENT 2	7
RESPONDENT 3	5
RESPONDENT 4	1
RESPONDENT 5	1
RESPONDENT 6	3
RESPONDENT 7	1
RESPONDENT 8	3
RESPONDENT 9	1/3
RESPONDENT 10	5
RESPONDENT 11	9
RESPONDENT 12	8
GEOMEAN	**2.7524**

Pairwise comparison of ***inflation and GDP*** with respect to **socio-economic stability in the host country**

	C1-C3
RESPONDENT 1	7
RESPONDENT 2	7
RESPONDENT 3	5
RESPONDENT 4	1
RESPONDENT 5	1
RESPONDENT 6	7
RESPONDENT 7	1
RESPONDENT 8	3
RESPONDENT 9	3
RESPONDENT 10	3
RESPONDENT 11	7
RESPONDENT 12	1/6
GEOMEAN	**2.4796**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to **socio-economic stability in the host country**

	C1-C2
RESPONDENT 1	7
RESPONDENT 2	9
RESPONDENT 3	5
RESPONDENT 4	1
RESPONDENT 5	5
RESPONDENT 6	8
RESPONDENT 7	3
RESPONDENT 8	5
RESPONDENT 9	3
RESPONDENT 10	1
RESPONDENT 11	3
RESPONDENT 12	1/7
GEOMEAN	**2.811**

Pairwise comparison of ***exchange rate risk and GDP*** with respect to **socio-economic stability in the host country**

	C2-C3
RESPONDENT 1	1
RESPONDENT 2	9
RESPONDENT 3	3
RESPONDENT 4	1/7
RESPONDENT 5	1/3
RESPONDENT 6	1/3
RESPONDENT 7	7
RESPONDENT 8	5
RESPONDENT 9	5
RESPONDENT 10	5
RESPONDENT 11	7
RESPONDENT 12	7
GEOMEAN	**2.2665**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **restrictions in workforce and material supply in the host country**

	C1-C2
RESPONDENT 1	1
RESPONDENT 2	1/9
RESPONDENT 3	3
RESPONDENT 4	1/5
RESPONDENT 5	1/5
RESPONDENT 6	1
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	4
RESPONDENT 10	1
RESPONDENT 11	1/3
RESPONDENT 12	1/8
GEOMEAN	**0.753**

Pairwise comparison of ***exchange rate risk and tax discrimination*** with respect to the **unexpected costs of the project**

	C2-C4
RESPONDENT 1	5
RESPONDENT 2	7
RESPONDENT 3	3
RESPONDENT 4	7
RESPONDENT 5	1
RESPONDENT 6	5
RESPONDENT 7	7
RESPONDENT 8	1
RESPONDENT 9	4
RESPONDENT 10	5
RESPONDENT 11	3
RESPONDENT 12	6
GEOMEAN	**3.807**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **unexpected costs of the project**

	C1-C2
RESPONDENT 1	1
RESPONDENT 2	9
RESPONDENT 3	1
RESPONDENT 4	1/7
RESPONDENT 5	1
RESPONDENT 6	1/5
RESPONDENT 7	3
RESPONDENT 8	1
RESPONDENT 9	1
RESPONDENT 10	1
RESPONDENT 11	1/3
RESPONDENT 12	1/7
GEOMEAN	**0.759**

Pairwise comparison of ***inflation and tax discrimination*** with respect to the **unexpected costs of the project**

	C1-C4
RESPONDENT 1	5
RESPONDENT 2	7
RESPONDENT 3	5
RESPONDENT 4	7
RESPONDENT 5	1
RESPONDENT 6	7
RESPONDENT 7	7
RESPONDENT 8	3
RESPONDENT 9	5
RESPONDENT 10	5
RESPONDENT 11	3
RESPONDENT 12	6
GEOMEAN	**4.561**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **time delays of the project**

	C1-C2
RESPONDENT 1	1
RESPONDENT 2	9
RESPONDENT 3	1
RESPONDENT 4	5
RESPONDENT 5	1/5
RESPONDENT 6	5
RESPONDENT 7	7
RESPONDENT 8	1
RESPONDENT 9	1
RESPONDENT 10	1
RESPONDENT 11	1/3
RESPONDENT 12	1
GEOMEAN	**1.474**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C1-C2
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
RESPONDENT 4	1/3
RESPONDENT 5	1/3
RESPONDENT 6	1/5
RESPONDENT 7	3
RESPONDENT 8	1
RESPONDENT 9	1
RESPONDENT 10	1
RESPONDENT 11	1/3
RESPONDENT 12	1
GEOMEAN	**0.7282**

Pairwise comparison of ***political stability and force majeure*** with respect to the **inflation in the host country**

	C5-C7
RESPONDENT 1	5
RESPONDENT 2	1
RESPONDENT 3	5
RESPONDENT 4	7
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	7
RESPONDENT 8	3
RESPONDENT 9	1
RESPONDENT 10	5
RESPONDENT 11	1/3
RESPONDENT 12	6
GEOMEAN	**3.14**

Pairwise comparison of ***political stability and force majeure*** with respect to the **exchange rate risk in the host country**

	C5-C7
RESPONDENT 1	7
RESPONDENT 2	5
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	2
RESPONDENT 10	5
RESPONDENT 11	1/3
RESPONDENT 12	7
GEOMEAN	**3.5907**

Pairwise comparison of ***political stability and force majeure*** with respect to the **GDP in the host country**

	C5-C7
RESPONDENT 1	7
RESPONDENT 2	7
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	3
RESPONDENT 10	5
RESPONDENT 11	1/7
RESPONDENT 12	5
GEOMEAN	**3.4609**

Pairwise comparison of ***political stability and force majeure*** with respect to the **socio-economic stability in the host country**

	C5-C7
RESPONDENT 1	7
RESPONDENT 2	7
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	5
RESPONDENT 9	5
RESPONDENT 10	5
RESPONDENT 11	1
RESPONDENT 12	8
GEOMEAN	**4.609**

Pairwise comparison of ***political stability and force majeure*** with respect to the **strength of the legal system in the host country**

	C5-C7
RESPONDENT 1	5
RESPONDENT 2	7
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	3
RESPONDENT 6	5
RESPONDENT 7	7
RESPONDENT 8	5
RESPONDENT 9	5
RESPONDENT 10	5
RESPONDENT 11	1/7
RESPONDENT 12	9
GEOMEAN	**3.793**

Pairwise comparison of ***political stability and force majeure*** with respect to the **government policy to construction industry in the host country**

	C5-C7
RESPONDENT 1	7
RESPONDENT 2	7
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	5
RESPONDENT 9	5
RESPONDENT 10	5
RESPONDENT 11	1
RESPONDENT 12	8
GEOMEAN	**4.609**

Pairwise comparison of **strength of the legal system in the host country** ***and force majeure*** with respect to the **unexpected costs of the project**

	C5-C7
RESPONDENT 1	5
RESPONDENT 2	1
RESPONDENT 3	1
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	1/3
RESPONDENT 9	1/5
RESPONDENT 10	5
RESPONDENT 11	1
RESPONDENT 12	8
GEOMEAN	**2.1219**

Pairwise comparison of ***political stability and*** **strength of the legal system in the host country** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C5-C6
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	1
RESPONDENT 6	1/5
RESPONDENT 7	1/3
RESPONDENT 8	1/3
RESPONDENT 9	1
RESPONDENT 10	1
RESPONDENT 11	9
RESPONDENT 12	1/7
GEOMEAN	**0.655**

Pairwise comparison of ***political stability and force majeure*** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C5-C7
RESPONDENT 1	7
RESPONDENT 2	5
RESPONDENT 3	1/3
RESPONDENT 4	5
RESPONDENT 5	1
RESPONDENT 6	1/3
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	1/2
RESPONDENT 10	5
RESPONDENT 11	7
RESPONDENT 12	1/7
GEOMEAN	**1.754**

Pairwise comparison of **strength of the legal system in the host country *and force majeure*** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C6-C7
RESPONDENT 1	7
RESPONDENT 2	1
RESPONDENT 3	1/5
RESPONDENT 4	5
RESPONDENT 5	3
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	5
RESPONDENT 10	3
RESPONDENT 11	3
RESPONDENT 12	7
GEOMEAN	**2.983**

Pairwise comparison of **government policy to construction industry and the restrictions in workforce and material supply in the host country** with respect to the **unexpected costs of the project**

	C13-C15
RESPONDENT 1	1
RESPONDENT 2	1/5
RESPONDENT 3	1
RESPONDENT 4	1/5
RESPONDENT 5	1
RESPONDENT 6	1/8
RESPONDENT 7	1/5
RESPONDENT 8	3
RESPONDENT 9	1/6
RESPONDENT 10	1/3
RESPONDENT 11	1/7
RESPONDENT 12	8
GEOMEAN	**0.4898**

Pairwise comparison of **government policy to construction industry and the restrictions in workforce and material supply in the host country** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C13-C15
RESPONDENT 1	1
RESPONDENT 2	7
RESPONDENT 3	1
RESPONDENT 4	1/5
RESPONDENT 5	1
RESPONDENT 6	1/8
RESPONDENT 7	5
RESPONDENT 8	3
RESPONDENT 9	1/5
RESPONDENT 10	1/3
RESPONDENT 11	1/3
RESPONDENT 12	1/8
GEOMEAN	**0.6636**

Pairwise comparison of **improper drawings and time delays** with respect to the **unexpected costs of the project**

	C17-C18
RESPONDENT 1	1/5
RESPONDENT 2	1/9
RESPONDENT 3	1
RESPONDENT 4	3
RESPONDENT 5	1/5
RESPONDENT 6	1/5
RESPONDENT 7	1/5
RESPONDENT 8	3
RESPONDENT 9	1/3
RESPONDENT 10	1/3
RESPONDENT 11	1/7
RESPONDENT 12	8
GEOMEAN	**0.492**

Pairwise comparison of **improper drawings and conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **unexpected costs of the project**

	C17-C19
RESPONDENT 1	5
RESPONDENT 2	1/7
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	1/5
RESPONDENT 8	1/3
RESPONDENT 9	2
RESPONDENT 10	3
RESPONDENT 11	1/3
RESPONDENT 12	5
GEOMEAN	**1.1217**

Pairwise comparison of **time delays and conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **unexpected costs of the project**

	C18-C19
RESPONDENT 1	5
RESPONDENT 2	9
RESPONDENT 3	1/3
RESPONDENT 4	1/3
RESPONDENT 5	5
RESPONDENT 6	8
RESPONDENT 7	5
RESPONDENT 8	1
RESPONDENT 9	3
RESPONDENT 10	3
RESPONDENT 11	1/3
RESPONDENT 12	8
GEOMEAN	**2.317**

Pairwise comparison of the **unexpected costs of the project and improper drawings** with respect to the **time delays of the project**

	C16-C17
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	1/3
RESPONDENT 5	1
RESPONDENT 6	5
RESPONDENT 7	5
RESPONDENT 8	1
RESPONDENT 9	1/2
RESPONDENT 10	1/3
RESPONDENT 11	1/3
RESPONDENT 12	1/3
GEOMEAN	**0.781**

Pairwise comparison of **improper drawings and conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **time delays of the project**

	C17-C19
RESPONDENT 1	1
RESPONDENT 2	1/7
RESPONDENT 3	1/3
RESPONDENT 4	3
RESPONDENT 5	5
RESPONDENT 6	1
RESPONDENT 7	1/5
RESPONDENT 8	1
RESPONDENT 9	1/3
RESPONDENT 10	1
RESPONDENT 11	1/3
RESPONDENT 12	1
GEOMEAN	**0.708**

Pairwise comparison of the **unexpected costs of the project *and* conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **time delays of the project**

	C16-C19
RESPONDENT 1	1
RESPONDENT 2	1/9
RESPONDENT 3	1/5
RESPONDENT 4	1/3
RESPONDENT 5	5
RESPONDENT 6	1
RESPONDENT 7	5
RESPONDENT 8	1
RESPONDENT 9	1/5
RESPONDENT 10	1/3
RESPONDENT 11	1/5
RESPONDENT 12	6
GEOMEAN	**0.704**

Pairwise comparison of the **unexpected costs of the project and improper drawings** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C16-C17
RESPONDENT 1	5
RESPONDENT 2	1
RESPONDENT 3	1
RESPONDENT 4	1/3
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	7
RESPONDENT 8	1
RESPONDENT 9	3
RESPONDENT 10	1
RESPONDENT 11	5
RESPONDENT 12	1/5
GEOMEAN	**1.474**

Pairwise comparison of **improper drawings and time delays of the project** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C17-C18
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
RESPONDENT 4	3
RESPONDENT 5	1
RESPONDENT 6	3
RESPONDENT 7	1/5
RESPONDENT 8	1
RESPONDENT 9	3
RESPONDENT 10	1
RESPONDENT 11	1/5
RESPONDENT 12	1/3
GEOMEAN	**0.918**

Pairwise comparison of the **unexpected costs of the project and time delays of the project** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C16-C18
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
RESPONDENT 4	3
RESPONDENT 5	1
RESPONDENT 6	1
RESPONDENT 7	7
RESPONDENT 8	1
RESPONDENT 9	3
RESPONDENT 10	1
RESPONDENT 11	3
RESPONDENT 12	1/3
GEOMEAN	**1.412**

Pairwise comparison of PARTNER B and PARTNER C with respect to **the inflation in the host country**

	B-C
RESPONDENT 1	5
RESPONDENT 2	7
RESPONDENT 3	1/3
RESPONDENT 4	9
RESPONDENT 5	1/5
RESPONDENT 6	5
RESPONDENT 7	6
RESPONDENT 8	5
RESPONDENT 9	1/5
RESPONDENT 10	1/2
RESPONDENT 11	1/5
RESPONDENT 12	7
GEOMEAN	**1.8384**

Pairwise comparison of PARTNER C and PARTNER A with respect to **the inflation in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1/9
RESPONDENT 5	1/3
RESPONDENT 6	1/5
RESPONDENT 7	1/8
RESPONDENT 8	1/5
RESPONDENT 9	4
RESPONDENT 10	1
RESPONDENT 11	2
RESPONDENT 12	1/8
GEOMEAN	**0.3794**

Pairwise comparison of PARTNER B and PARTNER A with respect to **the inflation in the host country**

	B-A
RESPONDENT 1	1/3
RESPONDENT 2	5
RESPONDENT 3	1/3
RESPONDENT 4	3
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	1
RESPONDENT 8	1/3
RESPONDENT 9	1/3
RESPONDENT 10	1/5
RESPONDENT 11	1/3
RESPONDENT 12	1/7
GEOMEAN	**0.592**

Pairwise comparison of PARTNER B and PARTNER C with respect to the ***exchange rate risk*** **in the host country**

	B-C
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	1/3
RESPONDENT 6	5
RESPONDENT 7	1/6
RESPONDENT 8	1/5
RESPONDENT 9	1/4
RESPONDENT 10	1/3
RESPONDENT 11	1/7
RESPONDENT 12	8
GEOMEAN	**0.4516**

Pairwise comparison of PARTNER B and PARTNER A with respect to the ***exchange rate risk*** **in the host country**

	B-A
RESPONDENT 1	1/5
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	2
RESPONDENT 6	1
RESPONDENT 7	1/8
RESPONDENT 8	1/5
RESPONDENT 9	1/4
RESPONDENT 10	1/5
RESPONDENT 11	3
RESPONDENT 12	1/7
GEOMEAN	**0.322**

Pairwise comparison of PARTNER B and PARTNER C with respect to the ***GDP*** **in the host country**

	B-C
RESPONDENT 1	5
RESPONDENT 2	3
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	8
RESPONDENT 8	5
RESPONDENT 9	3
RESPONDENT 10	2
RESPONDENT 11	1/5
RESPONDENT 12	7
GEOMEAN	**2.6179**

Pairwise comparison of PARTNER C and PARTNER A with respect to the ***exchange rate risk*** **in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	2
RESPONDENT 6	1/5
RESPONDENT 7	1
RESPONDENT 8	1/5
RESPONDENT 9	5
RESPONDENT 10	2
RESPONDENT 11	2
RESPONDENT 12	1/6
GEOMEAN	**0.559**

Pairwise comparison of PARTNER B and PARTNER A with respect to the ***GDP*** **in the host country**

	B-A
RESPONDENT 1	1/3
RESPONDENT 2	3
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	8
RESPONDENT 8	1/5
RESPONDENT 9	2
RESPONDENT 10	2
RESPONDENT 11	1/3
RESPONDENT 12	1/6
GEOMEAN	**1.3195**

Pairwise comparison of PARTNER C and PARTNER A with respect to the ***GDP*** **in the host country**

	C-A
RESPONDENT 1	1/3
RESPONDENT 2	1/2
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	1/6
RESPONDENT 8	1/5
RESPONDENT 9	1/5
RESPONDENT 10	1/3
RESPONDENT 11	1
RESPONDENT 12	1/7
GEOMEAN	**0.4169**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **tax discrimination in the host country**

	B-A
RESPONDENT 1	1/5
RESPONDENT 2	1/7
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	5
RESPONDENT 6	1
RESPONDENT 7	1/6
RESPONDENT 8	1/3
RESPONDENT 9	5
RESPONDENT 10	1/3
RESPONDENT 11	1
RESPONDENT 12	6
GEOMEAN	**0.592**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **tax discrimination in the host country**

	B-C
RESPONDENT 1	1/3
RESPONDENT 2	1/7
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	3
RESPONDENT 6	5
RESPONDENT 7	1/6
RESPONDENT 8	3
RESPONDENT 9	6
RESPONDENT 10	1/5
RESPONDENT 11	5
RESPONDENT 12	1/7
GEOMEAN	**0.6776**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **tax discrimination in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	1
RESPONDENT 6	1
RESPONDENT 7	1/6
RESPONDENT 8	1/5
RESPONDENT 9	1/5
RESPONDENT 10	1/4
RESPONDENT 11	1/5
RESPONDENT 12	7
GEOMEAN	**0.6088**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **political stability in the host country**

	B-C
RESPONDENT 1	3
RESPONDENT 2	5
RESPONDENT 3	1/5
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	3
RESPONDENT 9	7
RESPONDENT 10	6
RESPONDENT 11	1/5
RESPONDENT 12	1/8
GEOMEAN	**1.576**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **political stability in the host country**

	C-A
RESPONDENT 1	1
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	1
RESPONDENT 8	1/3
RESPONDENT 9	1/4
RESPONDENT 10	2
RESPONDENT 11	1/2
RESPONDENT 12	8
GEOMEAN	**1.7708**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **political stability in the host country**

	B-A
RESPONDENT 1	3
RESPONDENT 2	3
RESPONDENT 3	1/3
RESPONDENT 4	5
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	1/5
RESPONDENT 9	4
RESPONDENT 10	5
RESPONDENT 11	1/3
RESPONDENT 12	8
GEOMEAN	**1.7804**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **strength of the legal system in the host country**

	B-C
RESPONDENT 1	1
RESPONDENT 2	1/5
RESPONDENT 3	1/5
RESPONDENT 4	1/3
RESPONDENT 5	1/3
RESPONDENT 6	1/3
RESPONDENT 7	1/8
RESPONDENT 8	1/3
RESPONDENT 9	1/2
RESPONDENT 10	1/5
RESPONDENT 11	1
RESPONDENT 12	1/7
GEOMEAN	**0.2812**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **strength of the legal system in the host country**

	B-A
RESPONDENT 1	1/3
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	1/3
RESPONDENT 5	1/5
RESPONDENT 6	1/3
RESPONDENT 7	1/8
RESPONDENT 8	1/4
RESPONDENT 9	1/2
RESPONDENT 10	1/5
RESPONDENT 11	1/5
RESPONDENT 12	6
GEOMEAN	**0.3502**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **force majeure in the host country**

	B-C
RESPONDENT 1	3
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	1/5
RESPONDENT 7	9
RESPONDENT 8	1
RESPONDENT 9	1/4
RESPONDENT 10	1/5
RESPONDENT 11	1/2
RESPONDENT 12	7
GEOMEAN	**0.99**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **strength of the legal system in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	1
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	1/5
RESPONDENT 9	4
RESPONDENT 10	1
RESPONDENT 11	1
RESPONDENT 12	7
GEOMEAN	**1.2733**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **force majeure in the host country**

	B-A
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	1
RESPONDENT 8	4
RESPONDENT 9	1/8
RESPONDENT 10	1/5
RESPONDENT 11	1/5
RESPONDENT 12	5
GEOMEAN	**0.9502**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **force majeure in the host country**

	C-A
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	1/9
RESPONDENT 8	1
RESPONDENT 9	1/3
RESPONDENT 10	1/3
RESPONDENT 11	3
RESPONDENT 12	1/7
GEOMEAN	**0.661**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **socio-economic stability in the host country**

	B-A
RESPONDENT 1	3
RESPONDENT 2	3
RESPONDENT 3	1/3
RESPONDENT 4	5
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	3
RESPONDENT 9	4
RESPONDENT 10	4
RESPONDENT 11	5
RESPONDENT 12	7
GEOMEAN	**2.953**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **socio-economic stability in the host country**

	B-C
RESPONDENT 1	1/3
RESPONDENT 2	4
RESPONDENT 3	1/3
RESPONDENT 4	5
RESPONDENT 5	3
RESPONDENT 6	3
RESPONDENT 7	8
RESPONDENT 8	5
RESPONDENT 9	3
RESPONDENT 10	5
RESPONDENT 11	3
RESPONDENT 12	1/6
GEOMEAN	**2.3868**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **socio-economic stability in the host country**

	C-A
RESPONDENT 1	1/3
RESPONDENT 2	1
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	3
RESPONDENT 6	1/3
RESPONDENT 7	1/9
RESPONDENT 8	1/3
RESPONDENT 9	3
RESPONDENT 10	2
RESPONDENT 11	2
RESPONDENT 12	8
GEOMEAN	**1.8384**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **bribery and corruption in the host country**

	B-C
RESPONDENT 1	1/5
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	5
RESPONDENT 6	5
RESPONDENT 7	1/9
RESPONDENT 8	1/5
RESPONDENT 9	1/6
RESPONDENT 10	1/5
RESPONDENT 11	2
RESPONDENT 12	1/7
GEOMEAN	**0.4046**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **bribery and corruption in the host country**

	C-A
RESPONDENT 1	1
RESPONDENT 2	1/3
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	1
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	3
RESPONDENT 9	5
RESPONDENT 10	1/2
RESPONDENT 11	1/2
RESPONDENT 12	5
GEOMEAN	**1.6037**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **bribery and corruption in the host country**

	B-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	5
RESPONDENT 7	1/9
RESPONDENT 8	1/3
RESPONDENT 9	1/6
RESPONDENT 10	1/4
RESPONDENT 11	1
RESPONDENT 12	1/6
GEOMEAN	**0.4126**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **competitors in the host country**

	B-C
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	1/7
RESPONDENT 5	1/5
RESPONDENT 6	5
RESPONDENT 7	9
RESPONDENT 8	1/5
RESPONDENT 9	6
RESPONDENT 10	4
RESPONDENT 11	3
RESPONDENT 12	7
GEOMEAN	**1.4573**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **competitors in the host country**

	B-A
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	1/7
RESPONDENT 5	1/5
RESPONDENT 6	3
RESPONDENT 7	7
RESPONDENT 8	1/5
RESPONDENT 9	5
RESPONDENT 10	3
RESPONDENT 11	5
RESPONDENT 12	5
GEOMEAN	**1.311**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **competitors in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	3
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	1/7
RESPONDENT 8	1/3
RESPONDENT 9	1/6
RESPONDENT 10	1/5
RESPONDENT 11	2
RESPONDENT 12	1/7
GEOMEAN	**0.4149**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **government policy to construction industry in the host country**

	B-C
RESPONDENT 1	1/5
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	5
RESPONDENT 5	5
RESPONDENT 6	1/5
RESPONDENT 7	6
RESPONDENT 8	1/3
RESPONDENT 9	5
RESPONDENT 10	4
RESPONDENT 11	2
RESPONDENT 12	1/6
GEOMEAN	**0.988**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **government policy to construction industry in the host country**

	B-A
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	1/5
RESPONDENT 5	1/5
RESPONDENT 6	1/5
RESPONDENT 7	6
RESPONDENT 8	1/3
RESPONDENT 9	3
RESPONDENT 10	4
RESPONDENT 11	3
RESPONDENT 12	5
GEOMEAN	**0.996**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **government policy to construction industry in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	1
RESPONDENT 8	3
RESPONDENT 9	4
RESPONDENT 10	1/5
RESPONDENT 11	1/2
RESPONDENT 12	1/6
GEOMEAN	**0.851**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **contribution of the construction industry in GDP of the host country**

	B-A
RESPONDENT 1	3
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	5
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	1
RESPONDENT 9	1/3
RESPONDENT 10	6
RESPONDENT 11	1
RESPONDENT 12	5
GEOMEAN	**1.9744**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **contribution of the construction industry in GDP of the host country**

	B-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	5
RESPONDENT 4	1/5
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	6
RESPONDENT 8	1
RESPONDENT 9	1/3
RESPONDENT 10	5
RESPONDENT 11	1
RESPONDENT 12	6
GEOMEAN	**1.506**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **contribution of the construction industry in GDP of the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	1
RESPONDENT 8	1
RESPONDENT 9	4
RESPONDENT 10	3
RESPONDENT 11	1
RESPONDENT 12	5
GEOMEAN	**1.349**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **restrictions in workforce and material supply in the host country**

	B-C
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	1/5
RESPONDENT 4	1/7
RESPONDENT 5	1/5
RESPONDENT 6	1/7
RESPONDENT 7	4
RESPONDENT 8	1/3
RESPONDENT 9	5
RESPONDENT 10	3
RESPONDENT 11	3
RESPONDENT 12	7
GEOMEAN	**0.898**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **restrictions in workforce and material supply in the host country**

	C-A
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	1
RESPONDENT 8	1/3
RESPONDENT 9	1/4
RESPONDENT 10	1/5
RESPONDENT 11	1/3
RESPONDENT 12	1/7
GEOMEAN	**0.4388**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **restrictions in workforce and material supply in the host country**

	B-A
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	1/3
RESPONDENT 4	1/7
RESPONDENT 5	1/5
RESPONDENT 6	1/7
RESPONDENT 7	4
RESPONDENT 8	1/5
RESPONDENT 9	5
RESPONDENT 10	2
RESPONDENT 11	1
RESPONDENT 12	1/6
GEOMEAN	**0.532**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **unexpected costs of the project**

	B-C
RESPONDENT 1	1/3
RESPONDENT 2	3
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	3
RESPONDENT 6	1/5
RESPONDENT 7	1/9
RESPONDENT 8	3
RESPONDENT 9	6
RESPONDENT 10	3
RESPONDENT 11	5
RESPONDENT 12	7
GEOMEAN	**1.8103**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **unexpected costs of the project**

	B-A
RESPONDENT 1	3
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	1/5
RESPONDENT 7	1/9
RESPONDENT 8	1
RESPONDENT 9	4
RESPONDENT 10	3
RESPONDENT 11	1
RESPONDENT 12	6
GEOMEAN	**1.1698**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **improper drawings of the project**

	B-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	5
RESPONDENT 4	1/3
RESPONDENT 5	1/3
RESPONDENT 6	1/5
RESPONDENT 7	1/5
RESPONDENT 8	1
RESPONDENT 9	1/2
RESPONDENT 10	3
RESPONDENT 11	1/3
RESPONDENT 12	5
GEOMEAN	**0.836**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **unexpected costs of the project**

	C-A
RESPONDENT 1	1
RESPONDENT 2	1/3
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	1/3
RESPONDENT 6	1
RESPONDENT 7	1/8
RESPONDENT 8	1/3
RESPONDENT 9	1/6
RESPONDENT 10	1/5
RESPONDENT 11	1/3
RESPONDENT 12	1/8
GEOMEAN	**0.303**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **improper drawings of the project**

	B-A
RESPONDENT 1	3
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	1/3
RESPONDENT 6	1/5
RESPONDENT 7	1/7
RESPONDENT 8	1
RESPONDENT 9	1/2
RESPONDENT 10	4
RESPONDENT 11	1/5
RESPONDENT 12	5
GEOMEAN	**0.751**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **improper drawings of the project**

	C-A
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	3
RESPONDENT 6	1
RESPONDENT 7	7
RESPONDENT 8	1
RESPONDENT 9	4
RESPONDENT 10	1/3
RESPONDENT 11	1/2
RESPONDENT 12	6
GEOMEAN	**1.25**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **time delays of the project**

	B-A
RESPONDENT 1	4
RESPONDENT 2	1/3
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	3
RESPONDENT 6	1/7
RESPONDENT 7	1/4
RESPONDENT 8	1
RESPONDENT 9	1/4
RESPONDENT 10	1/2
RESPONDENT 11	1
RESPONDENT 12	5
GEOMEAN	**0.6126**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **time delays of the project**

	B-C
RESPONDENT 1	3
RESPONDENT 2	1/3
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	1
RESPONDENT 6	1/7
RESPONDENT 7	4
RESPONDENT 8	3
RESPONDENT 9	1/4
RESPONDENT 10	1/2
RESPONDENT 11	1
RESPONDENT 12	76
GEOMEAN	**0.919**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **time delays of the project**

	C-A
RESPONDENT 1	1/3
RESPONDENT 2	1
RESPONDENT 3	1/3
RESPONDENT 4	1
RESPONDENT 5	2
RESPONDENT 6	1
RESPONDENT 7	4
RESPONDENT 8	1/3
RESPONDENT 9	4
RESPONDENT 10	1/4
RESPONDENT 11	1
RESPONDENT 12	1/7
GEOMEAN	**0.759**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	B-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	3
RESPONDENT 4	1/3
RESPONDENT 5	3
RESPONDENT 6	1/7
RESPONDENT 7	1/8
RESPONDENT 8	1/3
RESPONDENT 9	1/5
RESPONDENT 10	3
RESPONDENT 11	3
RESPONDENT 12	1/6
GEOMEAN	**0.531**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C-A
RESPONDENT 1	1/3
RESPONDENT 2	1
RESPONDENT 3	1/3
RESPONDENT 4	1/3
RESPONDENT 5	1
RESPONDENT 6	1
RESPONDENT 7	7
RESPONDENT 8	1/2
RESPONDENT 9	4
RESPONDENT 10	1/2
RESPONDENT 11	1/2
RESPONDENT 12	7
GEOMEAN	**1.105**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	B-A
RESPONDENT 1	1/3
RESPONDENT 2	1
RESPONDENT 3	1/5
RESPONDENT 4	1/3
RESPONDENT 5	1
RESPONDENT 6	1/7
RESPONDENT 7	1/9
RESPONDENT 8	1/3
RESPONDENT 9	1/5
RESPONDENT 10	3
RESPONDENT 11	31
RESPONDENT 12	5
GEOMEAN	**0.504**

APPENDIX-D

DATA OF THE PAIRWISE COMPARISONS (CASE STUDY)

Pairwise comparisons of ***economic risks*** with respect to **PARTNER A**

	C1-C2	**C2-C3**	**C3-C4**	**C1-C4**
RESPONDENT 1	9	8	1	9
RESPONDENT 2	4	6	1/6	1/7
RESPONDENT 3	1/3	3	1/9	1
GEOMEAN	**2.289**	**5.241**	**0.264**	**1.087**

Pairwise comparisons of ***political risks*** with respect to **PARTNER A**

	C5-C6	**C6-C7**	**C5-C7**
RESPONDENT 1	7	1/6	8
RESPONDENT 2	5	1/3	1/3
RESPONDENT 3	9	1/9	9
GEOMEAN	**6.804**	**0.183**	**2.884**

Pairwise comparisons of ***socio-cultural risks*** with respect to **PARTNER A**

	C10-C11
RESPONDENT 1	1/6
RESPONDENT 2	1/3
RESPONDENT 3	5
GEOMEAN	**0.652**

Pairwise comparisons of ***industry related risks*** with respect to **PARTNER A**

	C12-C13	**C13-C14**	**C14-C15**	**C12-C15**
RESPONDENT 1	1/5	6	1/8	1/8
RESPONDENT 2	1/3	6	1/5	1
RESPONDENT 3	7	5	1/3	3
GEOMEAN	**0.775**	**5.646**	**0.202**	**0.721**

Pairwise comparisons of ***project related risks*** with respect to **PARTNER A**

	C16-C17	**C17-C18**	**C18-C19**	**C16-C19**
RESPONDENT 1	9	1/8	8	6
RESPONDENT 2	3	1/3	1/4	1/5
RESPONDENT 3	5	1/5	5	5
GEOMEAN	**5.129**	**0.202**	**2.154**	**1.817**

Pairwise comparisons of ***economic risks*** with respect to **PARTNER B**

	C1-C2	**C2-C3**	**C3-C4**	**C1-C4**
RESPONDENT 1	1/8	8	1/5	8
RESPONDENT 2	3	5	1/6	1/4
RESPONDENT 3	3	6	1/5	3
GEOMEAN	**1.04**	**6.214**	**0.188**	**1.817**

Pairwise comparisons of ***political risks*** with respect to **PARTNER B**

	C5-C6	**C6-C7**	**C5-C7**
RESPONDENT 1	7	1/6	9
RESPONDENT 2	1/4	1/3	1/3
RESPONDENT 3	3	1/5	2
GEOMEAN	**1.738**	**0.223**	**1.817**

Pairwise comparisons of ***socio-cultural risks*** with respect to **PARTNER B**

	C10-C11
RESPONDENT 1	1/9
RESPONDENT 2	1/4
RESPONDENT 3	1/6
GEOMEAN	**0.166**

Pairwise comparisons of ***industry related risks*** with respect to **PARTNER B**

	C12-C13	**C13-C14**	**C14-C15**	**C12-C15**
RESPONDENT 1	1/7	1/8	1/5	1/6
RESPONDENT 2	1/4	4	1/5	4
RESPONDENT 3	1/5	5	1/5	2
GEOMEAN	**0.192**	**1.357**	**0.2**	**1.106**

Pairwise comparisons of ***project related risks*** with respect to **PARTNER B**

	C16-C17	**C17-C18**	**C18-C19**	**C16-C19**
RESPONDENT 1	8	1/5	8	8
RESPONDENT 2	4	1/3	1/4	1/3
RESPONDENT 3	5	1/4	2	2
GEOMEAN	**5.428**	**0.255**	**1.587**	**1.747**

Pairwise comparisons of ***economic risks*** with respect to **PARTNER C**

	C1-C2	**C2-C3**	**C3-C4**	**C1-C4**
RESPONDENT 1	1	1	1	1/5
RESPONDENT 2	4	5	1/5	1/3
RESPONDENT 3	2	3	1/5	1/4
GEOMEAN	**2**	**2.466**	**0.342**	**0.255**

Pairwise comparisons of ***political risks*** with respect to **PARTNER C**

	C5-C6	**C6-C7**	**C5-C7**
RESPONDENT 1	9	1/6	9
RESPONDENT 2	5	3	4
RESPONDENT 3	7	1	6
GEOMEAN	**6.804**	**0.793**	**6**

Pairwise comparisons of ***socio-cultural risks*** with respect to **PARTNER C**

	C10-C11
RESPONDENT 1	1/5
RESPONDENT 2	1/5
RESPONDENT 3	1/5
GEOMEAN	**0.2**

Pairwise comparisons of ***industry related risks*** with respect to **PARTNER C**

	C12-C13	**C13-C14**	**C14-C15**	**C12-C15**
RESPONDENT 1	1/8	8	1	1
RESPONDENT 2	1/3	3	1/2	3
RESPONDENT 3	1/5	5	1	2
GEOMEAN	**0.202**	**4.932**	**0.793**	**1.817**

Pairwise comparisons of ***project related risks*** with respect to **PARTNER C**

	C16-C17	**C17-C18**	**C18-C19**	**C16-C19**
RESPONDENT 1	1	1/6	6	5
RESPONDENT 2	5	1/4	1/4	1/4
RESPONDENT 3	2	1/5	1/4	1/3
GEOMEAN	**2.154**	**0.202**	**0.721**	**0.746**

Pairwise comparison of ***inflation and GDP*** with respect to **political stability in the host country.**

	C1-C3
RESPONDENT 1	6
RESPONDENT 2	1/4
RESPONDENT 3	1/3
GEOMEAN	**0.793**

Pairwise comparison of ***exchange rate risk and GDP*** with respect to **socio-economic stability in the host country**

	C2-C3
RESPONDENT 1	8
RESPONDENT 2	1/2
RESPONDENT 3	1/5
GEOMEAN	**0.928**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to **socio-economic stability in the host country**

	C1-C2
RESPONDENT 1	6
RESPONDENT 2	5
RESPONDENT 3	5
GEOMEAN	**5.313**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **restrictions in workforce and material supply in the host country**

	C1-C2
RESPONDENT 1	1/7
RESPONDENT 2	4
RESPONDENT 3	5
GEOMEAN	**1.418**

Pairwise comparison of ***inflation and GDP*** with respect to **socio-economic stability in the host country**

	C1-C3
RESPONDENT 1	6
RESPONDENT 2	3
RESPONDENT 3	3
GEOMEAN	**3.779**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **unexpected costs of the project**

	C1-C2
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	5
GEOMEAN	**5.428**

Pairwise comparison of ***exchange rate risk and tax discrimination*** with respect to the **unexpected costs of the project**

	C2-C4
RESPONDENT 1	5
RESPONDENT 2	1/5
RESPONDENT 3	9
GEOMEAN	**2.08**

Pairwise comparison of ***inflation and tax discrimination*** with respect to the **unexpected costs of the project**

	C1-C4
RESPONDENT 1	8
RESPONDENT 2	1/2
RESPONDENT 3	5
GEOMEAN	**2.714**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **time delays of the project**

	C1-C2
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	1/5
GEOMEAN	**1.686**

Pairwise comparison of ***inflation and exchange rate risk*** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C1-C2
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	1/5
GEOMEAN	**1.856**

Pairwise comparison of ***political stability and force majeure*** with respect to the **inflation in the host country**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	1/6
RESPONDENT 3	5
GEOMEAN	**1.882**

Pairwise comparison of ***political stability and force majeure*** with respect to the **exchange rate risk in the host country**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of ***political stability and force majeure*** with respect to the **GDP in the host country**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	1/5
RESPONDENT 3	5
GEOMEAN	**2**

Pairwise comparison of ***political stability and force majeure*** with respect to the **strength of the legal system in the host country**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	5
RESPONDENT 3	5
GEOMEAN	**5.848**

Pairwise comparison of ***political stability and force majeure*** with respect to the **socio-economic stability in the host country**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of ***political stability and force majeure*** with respect to the **government policy to construction industry in the host country**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	1/3
RESPONDENT 3	5
GEOMEAN	**2.371**

Pairwise comparison of **strength of the legal system in the host country *and force majeure*** with respect to the **unexpected costs of the project**

	C6-C7
RESPONDENT 1	1/5
RESPONDENT 2	2
RESPONDENT 3	1/3
GEOMEAN	**0.510**

Pairwise comparison of ***political stability and*** **strength of the legal system in the host country** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C5-C6
RESPONDENT 1	8
RESPONDENT 2	1/3
RESPONDENT 3	1/3
GEOMEAN	**0.961**

Pairwise comparison of ***political stability and force majeure*** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C5-C7
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	1/3
GEOMEAN	**2.201**

Pairwise comparison of **government policy to construction industry and the restrictions in workforce and material supply in the host country** with respect to the **unexpected costs of the project**

	C13-C15
RESPONDENT 1	1
RESPONDENT 2	4
RESPONDENT 3	9
GEOMEAN	**3.301**

Pairwise comparison of **strength of the legal system in the host country *and force majeure*** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C6-C7
RESPONDENT 1	1/5
RESPONDENT 2	3
RESPONDENT 3	9
GEOMEAN	**1.754**

Pairwise comparison of **government policy to construction industry and the restrictions in workforce and material supply in the host country** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C13-C15
RESPONDENT 1	1/5
RESPONDENT 2	5
RESPONDENT 3	3
GEOMEAN	**1.442**

Pairwise comparison of **improper drawings and time delays** with respect to the **unexpected costs of the project**

	C17-C18
RESPONDENT 1	1/7
RESPONDENT 2	1/3
RESPONDENT 3	1/6
GEOMEAN	**0.199**

Pairwise comparison of **improper drawings and conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **unexpected costs of the project**

	C17-C19
RESPONDENT 1	1
RESPONDENT 2	1/4
RESPONDENT 3	1/5
GEOMEAN	**0.3684**

Pairwise comparison of **time delays and conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **unexpected costs of the project**

	C18-C19
RESPONDENT 1	7
RESPONDENT 2	1/3
RESPONDENT 3	5
GEOMEAN	**2.268**

Pairwise comparison of the **unexpected costs of the project and improper drawings** with respect to the **time delays of the project**

	C16-C17
RESPONDENT 1	6
RESPONDENT 2	3
RESPONDENT 3	3
GEOMEAN	**3.779**

Pairwise comparison of **improper drawings and conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **time delays of the project**

	C17-C19
RESPONDENT 1	1
RESPONDENT 2	1/4
RESPONDENT 3	1/3
GEOMEAN	**0.436**

Pairwise comparison of the **unexpected costs of the project *and* conflicts in contractual clauses (uncompleted contractual clauses)** with respect to the **time delays of the project**

	C16-C19
RESPONDENT 1	8
RESPONDENT 2	1/5
RESPONDENT 3	1/3
GEOMEAN	**0.810**

Pairwise comparison of the **unexpected costs of the project and improper drawings** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C16-C17
RESPONDENT 1	6
RESPONDENT 2	3
RESPONDENT 3	7
GEOMEAN	**5.013**

Pairwise comparison of **improper drawings and time delays of the project** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C17-C18
RESPONDENT 1	1/8
RESPONDENT 2	1/2
RESPONDENT 3	1
GEOMEAN	**0.396**

Pairwise comparison of the **unexpected costs of the project and time delays of the project** with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	C16-C18
RESPONDENT 1	1/8
RESPONDENT 2	3
RESPONDENT 3	1
GEOMEAN	**0.721**

Pairwise comparison of PARTNER B and PARTNER C with respect to **the inflation in the host country**

	B-C
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	6
GEOMEAN	**5.769**

Pairwise comparison of PARTNER B and PARTNER A with respect to **the inflation in the host country**

	A-B
RESPONDENT 1	1/8
RESPONDENT 2	6
RESPONDENT 3	1/4
GEOMEAN	**0.572**

Pairwise comparison of PARTNER C and PARTNER A with respect to **the inflation in the host country**

	A-C
RESPONDENT 1	9
RESPONDENT 2	6
RESPONDENT 3	6
GEOMEAN	**6.868**

Pairwise comparison of PARTNER B and PARTNER C with respect to the ***exchange rate risk*** **in the host country**

	B-C
RESPONDENT 1	9
RESPONDENT 2	1/3
RESPONDENT 3	2
GEOMEAN	**1.817**

Pairwise comparison of PARTNER B and PARTNER C with respect to the ***GDP*** **in the host country**

	B-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
GEOMEAN	**1**

Pairwise comparison of PARTNER B and PARTNER A with respect to the ***exchange rate risk*** **in the host country**

	A-B
RESPONDENT 1	1/9
RESPONDENT 2	5
RESPONDENT 3	1/3
GEOMEAN	**0.569**

Pairwise comparison of PARTNER B and PARTNER A with respect to the ***GDP*** **in the host country**

	A-B
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
GEOMEAN	**1**

Pairwise comparison of PARTNER C and PARTNER A with respect to the ***exchange rate risk*** **in the host country**

	A-C
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER C and PARTNER A with respect to the ***GDP*** **in the host country**

	A-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
GEOMEAN	**1**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **tax discrimination in the host country**

	B-C
RESPONDENT 1	8
RESPONDENT 2	1/5
RESPONDENT 3	2
GEOMEAN	**1.473**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **political stability in the host country**

	B-C
RESPONDENT 1	1/8
RESPONDENT 2	1/6
RESPONDENT 3	1/7
GEOMEAN	**1.143**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **tax discrimination in the host country**

	A-B
RESPONDENT 1	1/8
RESPONDENT 2	3
RESPONDENT 3	1/2
GEOMEAN	**0.572**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **political stability in the host country**

	A-B
RESPONDENT 1	8
RESPONDENT 2	5
RESPONDENT 3	6
GEOMEAN	**6.214**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **tax discrimination in the host country**

	A-C
RESPONDENT 1	1/9
RESPONDENT 2	1/5
RESPONDENT 3	1/7
GEOMEAN	**0.147**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **political stability in the host country**

	A-C
RESPONDENT 1	1/8
RESPONDENT 2	1/4
RESPONDENT 3	1/6
GEOMEAN	**0.173**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **strength of the legal system in the host country**

	B-C
RESPONDENT 1	1/9
RESPONDENT 2	1/6
RESPONDENT 3	1/7
GEOMEAN	**0.1383**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **force majeure in the host country**

	B-C
RESPONDENT 1	8
RESPONDENT 2	1/4
RESPONDENT 3	2
GEOMEAN	**1.587**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **strength of the legal system in the host country**

	A-B
RESPONDENT 1	9
RESPONDENT 2	4
RESPONDENT 3	6
GEOMEAN	**6**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **force majeure in the host country**

	A-B
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **strength of the legal system in the host country**

	A-C
RESPONDENT 1	1/8
RESPONDENT 2	1/3
RESPONDENT 3	1/5
GEOMEAN	**0.202**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **force majeure in the host country**

	A-C
RESPONDENT 1	8
RESPONDENT 2	1/2
RESPONDENT 3	3
GEOMEAN	**2.289**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **socio-economic stability in the host country**

	B-C
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **bribery and corruption in the host country**

	B-C
RESPONDENT 1	1/8
RESPONDENT 2	1/3
RESPONDENT 3	1/5
GEOMEAN	**0.202**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **socio-economic stability in the host country**

	A-B
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	6
GEOMEAN	**5.769**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **bribery and corruption in the host country**

	A-B
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **socio-economic stability in the host country**

	A-C
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **bribery and corruption in the host country**

	A-C
RESPONDENT 1	1/8
RESPONDENT 2	1/2
RESPONDENT 3	1/5
GEOMEAN	**0.232**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **competitors in the host country**

	B-C
RESPONDENT 1	6
RESPONDENT 2	1/3
RESPONDENT 3	2
GEOMEAN	**1.587**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **competitors in the host country**

	A-B
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	5
GEOMEAN	**5.428**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **competitors in the host country**

	A-C
RESPONDENT 1	8
RESPONDENT 2	4
RESPONDENT 3	15
GEOMEAN	**5.428**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **government policy to construction industry in the host country**

	B-C
RESPONDENT 1	1/9
RESPONDENT 2	1/6
RESPONDENT 3	1/8
GEOMEAN	**0.132**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **government policy to construction industry in the host country**

	A-B
RESPONDENT 1	9
RESPONDENT 2	4
RESPONDENT 3	6
GEOMEAN	**6**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **government policy to construction industry in the host country**

	A-C
RESPONDENT 1	1/8
RESPONDENT 2	1/4
RESPONDENT 3	1/5
GEOMEAN	**0.184**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **contribution of the construction industry in GDP of the host country**

	B-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
GEOMEAN	**1**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **restrictions in workforce and material supply in the host country**

	B-C
RESPONDENT 1	1/6
RESPONDENT 2	1/3
RESPONDENT 3	1/5
GEOMEAN	**0.223**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **contribution of the construction industry in GDP of the host country**

	A-B
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
GEOMEAN	**1**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **restrictions in workforce and material supply in the host country**

	A-B
RESPONDENT 1	9
RESPONDENT 2	5
RESPONDENT 3	7
GEOMEAN	**6.804**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **contribution of the construction industry in GDP of the host country**

	A-C
RESPONDENT 1	1
RESPONDENT 2	1
RESPONDENT 3	1
GEOMEAN	**1**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **restrictions in workforce and material supply in the host country**

	A-C
RESPONDENT 1	1/8
RESPONDENT 2	4
RESPONDENT 3	1/2
GEOMEAN	**0.629**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **unexpected costs of the project**

	B-C
RESPONDENT 1	9
RESPONDENT 2	3
RESPONDENT 3	6
GEOMEAN	**5.451**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **unexpected costs of the project**

	A-B
RESPONDENT 1	1/9
RESPONDENT 2	3
RESPONDENT 3	1/2
GEOMEAN	**0.550**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **unexpected costs of the project**

	A-C
RESPONDENT 1	9
RESPONDENT 2	3
RESPONDENT 3	6
GEOMEAN	**5.451**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **improper drawings of the project**

	B-C
RESPONDENT 1	9
RESPONDENT 2	2
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **improper drawings of the project**

	A-B
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **improper drawings of the project**

	A-C
RESPONDENT 1	8
RESPONDENT 2	3
RESPONDENT 3	5
GEOMEAN	**4.932**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **time delays of the project**

	B-C
RESPONDENT 1	9
RESPONDENT 2	4
RESPONDENT 3	6
GEOMEAN	**6**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **time delays of the project**

	A-B
RESPONDENT 1	1/8
RESPONDENT 2	3
RESPONDENT 3	1/2
GEOMEAN	**0.572**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **time delays of the project**

	A-C
RESPONDENT 1	1/8
RESPONDENT 2	5
RESPONDENT 3	1/2
GEOMEAN	**0.678**

Pairwise comparison of PARTNER B and PARTNER C with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	B-C
RESPONDENT 1	1/8
RESPONDENT 2	3
RESPONDENT 3	3
GEOMEAN	**1.04**

Pairwise comparison of PARTNER B and PARTNER A with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	A-B
RESPONDENT 1	5
RESPONDENT 2	4
RESPONDENT 3	2
GEOMEAN	**3.419**

Pairwise comparison of PARTNER C and PARTNER A with respect to the **conflicts in contractual clauses (uncompleted contractual clauses) of the project**

	A-C
RESPONDENT 1	5
RESPONDENT 2	4
RESPONDENT 3	5
GEOMEAN	**4.641**

CURRICULUM VITAE

PERSONAL INFORMATION

Name Surname : Güzin AYDOĞAN

Date and Place of Birth : 11.11.1975 / BALIKESİR

Foreign Langue : English

E-mail : aydoganguzin@hotmail.com
guzin.aydogan@msgsu.edu.tr

EDUCATION

Degree	Department	School/University	Graduation Year
Master	Architecture	Y.T.U	2006
Undergraduate	Architecture	M.S.U	2000
High School	Mathematics	SIRRI YIRCALI ANATOLIAN HIGH SCHOOL	1994

WORKING EXPERIENCE

Year	Corporation/Institute	Enrollment
2010_....	MSGSU/Faculty of Architecture Dep. of Interior Architecture	Lecturer
2004_2010	Maltepe University / Faculty of Architecture Dep. of Architecture	Research Assistant

PUBLISHMENTS

Papers

1. Aydoğan, Güzin and Köksal, Almula, “Host Country Related Risk Factors in International Construction: Meta-Analysis” Megaron, 2014.

Conference Papers

1. Aydoğan, Güzin and Köksal, Almula, “An Analysis of International Construction Risk Factors on Partner Selection by Applying ANP Approach”, International Conference on Construction and Real Estate Management- ICCREM 2013, 10-11 October, Karlsruhe, Germany , ISBN: 9780784413135.

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3. Aydoğan, Güzin and Köksal, Almula, “Uluslararası Yapım Projelerinde Ülke Riski Kriterlerinin Belirlenmesi Üzerine Bir Literatür Taraması”, 3. Proje ve Yapım Yönetimi Kongresi, 6-8 Kasım 2014, Antalya.