EXPLORATION OF FACTORS AFFECTING THE EXECUTION OF INTERNATIONAL DESIGN PROJECTS

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
ARCHITECTURE

FEBRUARY 2005

Approval of the Graduate School of Natural and Applied Sciences.

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ABSTRACT

EXPLORATION OF FACTORS AFFECTING THE EXECUTION OF INTERNATIONAL DESIGN PROJECTS

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February 2005, 105 pages

Economic instabilities in our country over the past few decades and improvement in communication technologies, have encouraged Turkish construction firms to utilize business opportunities in foreign countries. However, working abroad brings with it certain risks and problems. The aim of this thesis were to define and clarify problematic factors during the design stages in international design projects (IDP), to collect relevant suggested solutions and to try and determine the sources of these factors. The survey starts with general problems and/or factors which affect international projects and continues to examine whether these problems are the same as those faced in the architectural field. Also, the place of the Turkish construction industry in the world market, the reasons for the increase in international projects and the problems which might be faced while executing IDP have formed the scope of this thesis.

To this end informal interviews were carried out with managers and design professionals of architectural firms, based in Ankara, which were involved in international projects, in order to determine types of problems encountered in execution of IDPs. The first questionnaire was based on insight gained from

these interviews. Thereafter, the results of the first questionnaire formed the basis of the second questionnaire, which was delivered more extensively.

According to the research carried out in this study, the major effective factors in execution of IDPs could be listed as, cultural differences, communication within the project team, information technologies, standards and regulations, client and local authorities and economical situation of target country.

Keywords: international project, communication, culture, standards and regulations, information technologies.

ÖZ

ULUSLARARASI TASARIM PROJELERİNİN YÜRÜTÜLMESİNE ETKİ ETDEN FAKTÖRLERİN ARAŞTIRILMASI

FIĞLALI, UMUT
Yüksek Lisans, Yapı Bilgisi, Mimarlık Bölümü
Tez Yöneticisi: Y. Doç. Dr. Soofia Tahira Elias Özkan

Şubat 2005, 105 pages

Ülkemizde geçmişte yaşanan ekonomik düzensizlikler ve gelişen iletişim teknolojileri sayesinde uluslararası projelerin yaygın hale gelmesi, pek çok Türk inşaat firmalasının yabancı ülkelerdeki iş olanaklarını değerlendirmelerine neden olmuştur. Yürütülen projelerde işin uluslararası olmasından kaynaklanan problemler ile karşılaşılaşılmaktadır. Bu çalışmanın amacı tasarım sürecinin yürütülmesinde karşılaşılan problemleri ortaya çıkarmak, bu problemler ile ilgili çözüm önerilerini derlemek ve bu problemlerin kaynaklarını araştırmaktır. Bu araştırmayı yaparken, uluslararası projelere etki eden factorlerden yola çıkılmış ve bu problemlerin mimarlık çevresinde yaşanıp yaşanmadığı sorgulanmıştır. Türkiye'deki inşaat sektörünün dünya pazarındaki yeri, uluslararası projelerin doğuş nedenleri ve yaşanan genel sorunlar, mimarlık sektörünün yurt dışı projelerinde yaşayabilecekleri problemler tezin kapsamını oluşturmaktadır.

Karşılaşılan problemleri ortaya çıkarmak için yurt dışına iş yapan ve Ankara'da faaliyet gösteren birkaç mimarlık firmasının yöneticileri ve bu konuda deneyimi olan mimarları ile önce konu ile ilgili görüşülmüş ve ardından bu konuşmalar göz önüne alınarak iki aşamadan oluşan anketin ilki hazırlanmıştır.

Birinci anket sonucunda elde edilen veriler doğrultusunda ikinci anket oluşturulmuş ve daha geniş bir kitleye dağıtılmıştır.

Yapılan araştırmalar yurt dışına verilen mimari proje hizmeti sürecinde, kültürel farklılıkların, projeye dahil olan gruplar arasındaki iletişimin ve kullanılan bilgi teknolojileri ile proje yapılan ülkelerde uygulanan standart ve yönetmeliklerin, müşteri ve otorite profillerinin ve ekonomik durumun etkili olduğunu ortaya çıkarmıştır.

Anahtar kelimeler: uluslararası projeler, iletişim, kültür, standartlar ve yönetmelikler, bilgi teknolojileri

To My Family

ACKNOWLEDGEMENTS

With deepest gratitude, I would like to thank my supervisor Assoc. Prof. Soofia Tahira Elias Özkan, for her patience, advice and, most importantly, her encouragement throughout the entire process.

For their invaluable contributions to this thesis, I wish to express my gratitude to all the research participants who were really generous with their time and knowledge. I am also thankful to all jury members for their contributions. Many thanks go to Öncüoğlu Architecture and Planning Managers for their understanding and to my beloved friends, Saadet Toker, Buket Demirel, Zeynep Bıyıklı, Aslı Er Alkan and Mehlika Mıhoğlu Otlu who have never failed to support me when I was discouraged.

I also thank to my parents, who have always encouraged me and to Tuna Kıran, for his understanding, endless patience, support, encouragement and unshakeable faith in me.

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CHAPTER 1

INTRODUCTION

1.1 Argument

In recent years, there have been great developments in nearly all fields of business. One of them is, serious attempts to enter international markets serve for abroad instead of being limited to the home country. Many reasons, which are mainly financial, could be given for this desire, such as lower costs, more manpower and utilizing different opportunities of new markets. These advantages led many companies to seek for new market opportunities beyond their borders, and consequently, to compete in international markets. Turkey has also been affected by this trend and many Turkish firms from different sectors have established alliances with other firms in different countries and formed consortiums to execute projects abroad. It might sometimes be inevitable for these firms to face with problems in either design or execution stages or in both. These problems, which could be result in higher cost, longer time, *etc.,* could affect their performance in all steps of the design process and in some cases even the prestige of the firm might be in question.

In the past, many economical crises in our country and international market opportunities led Turkish contractors to take their chances in the international construction arena. The export of Turkish contracting services began in the first half of the 1970s. The first country to which our contractors offered their services was Libya, where they used to import the necessary technology from European countries. Thereafter, these contracting activities were extended to other international markets, starting with countries in the Middle East, such as Iraq, Jordan, Saudi Arabia, Kuwait, the United Arab Emirates, Yemen and

Iran.[1] Charts showing the distribution of international works of Turkish Contractors Association (TCA) members are given in Appendix A. It could be seen that most of the projects were executed in Libya (54%) in 1980-1989. This rate changed in the next decade (1990-1999) in such a way that most of the projects were executed in Russia (35%). In the past four years, from 2000 to 2003, the situation remained constant.

Turkish consultants are amongst the first ten in terms of contracting services in the international construction arena.[2] This state of affairs in the contracting sectors has also affected architectural firms. A number of architectural firms have signed contracts with international companies and executed projects abroad. Such projects have problems unique to their nature, being carried out on unfamiliar turf. Hence, international design projects require a unique organization that necessitates the involvement of many professionals from different countries, cultures, *etc*. In order to design and execute project successfully, the architect should be aware of all these differences and their effects on the process.

Research on this subject is still insufficient; it is therefore, an urgent need to collect germane information for architects who participate in international projects. The desire to gather this information related to the problems encountered in the execution of projects abroad was the departure point of this study. Literature survey and several research based upon the experiences of architects working on projects in question are also utilized to define the probable problems during the execution of a projects abroad. With full perception of the impact of these problems on international design project management, it could be possible for the architects to improve their rate of success.

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[1] Turkish Contractors Association Web Page, http://www.tmb.org.tr/, 2004

[2] The Building Information Center, Türk Yapı Sektörü Raporu, 2004

1.2 Objectives

Due to serious developments in business sectors, international project management and project management issues have been the topic of many studies. Most of these studies pointed out the general principles, which are effective factors on these issues, separately. The aim of this study was to explore whether the factors affecting international projects, are the same as one affecting the process of executing an international design project negatively, such as; reducing the efficiency of the design activity. The aim was also to list the basic problematic factors which affect international design projects. The first step towards overcoming an obstacle is to define and understand its reasons (Gültekin, 2004). In order to determine the possible problems that could be seen in international design projects (IDP), two questionnaires were administered to architectural firms and some statistical analyses have been used to analyze the results. The study was limited to architectural design offices in Ankara only, which are operating in foreign countries also.

1.3 Procedure

In the first phase of the study, an interview was conducted with architects who are executing projects abroad, in order to see whether they come up with any problems during pre-design and design stages of IDP or not. The first questionnaire was prepared in accordance to these interviews. In the second part of the study, a literature survey was carried out and related documents were obtained from the libraries in Ankara and electronic resources on the Internet. In the third phase of the study, through the guidance of the literature survey and by means of the first questionnaire, an exploratory study was carried out with the managers of architectural firms in to determine what types of problems can be encountered during the pre-design and design stages, while executing international design projects.

In the fourth phase, the second questionnaire was administered to the architects, through which those problems were rated. The answers to the questions at this stage were based on a Likert scale of 5, graded from the least to the most important factors. The fifth phase covers the evaluation of the questionnaires by means of some statistical analyses.

The first phase (first questionnaire) of the research included 24 architectural offices, which are located in Ankara, in order to perform a survey among the managers and experienced architects. This self administered on line questionnaire was completed and returned by 12 architects. In addition to these 24 architectural companies, the second questionnaire was also sent to 130 companies, which are member of Association of Turkish Consulting Engineers and Architects (ATCEA), for the second phase of the survey. Of these 154 firms, only 10 completed and returned the questionnaire**.** Data obtained from the questionnaires and were analyzed to arrive at pertinent conclusion.

1.4 Disposition

This study is composed of five parts; the first of which focuses on why firms started to work abroad, the role and place of the Turkish construction sector. The aims of the study is given under the "objective", succinct account of principle stages through the investigation progress is given under the "procedure" headings in this chapter. In the second chapter, which is the 'Literature Survey', types of international projects, reasons that led to the need and search for executing international projects and the probable problems that could be faced in this process are explained briefly. Afterwards, from these five basic problems three of them were taken and investigated deeply with the architectural view point. In the third chapter, material and method used for this study has been presented. By means of these materials, those three problems are investigated whether they really affect the IDP or not. Then, results of the analyses are explained in the forth chapter. The last chapter gives the discussion of the results and presents the concluding remarks.

CHAPTER 2

LITERATURE SURVEY

Turkish contractors have entered the international construction arena since early eighties. These developments encouraged many Turkish architectural firms to start and carry out projects abroad. Although this topic is not new, not many documents or publications could be found directly related to factors, which affect the international architectural projects, from pre-project to the post project stages. To clarify these, first of all, an extensive literature survey was conducted by the author. Then two step questionnaires were applied to the architects executing projects abroad to obtain these factors. Through the literature survey, author especially focused on general problems, restrictions and factors which affect international projects. Firstly types of international projects, reasons for entering into international business and the factors that affect international projects are explained briefly. Among these factors especially three of them were focused upon, then under those headings (factors) inter-national design projects are investigated thoroughly.

2.1 International Projects

There are four major types of project, namely domestic, overseas, foreign and global. A domestic project is one which is executed the home country by the resident firm; an overseas project is the type that is executed in a foreign country for the native firm; a foreign project is of the kind that is executed in a foreign country for a foreign firm; and a global project is one that consists of many professionals from different countries and cultures for the entire enterprise and it may be spread over many countries (Gray and Larson, 2004).

International business is not a new phenomenon. Before the time of Christ, Phoenician and Greek merchants were sending representatives abroad to sell their goods (Ball, McCulloch, Frantz, Geringer and Minor, 2004). According to Zenoff (1971, p.26) there are four major reasons to go into international business: "First of all, the objectives of increasing a company's capacity and profits; secondly, the need to protect a firm's profit making opportunities and capabilities; thirdly, the desire of management or stockholders for their company to become more international in scope; and finally, the acquisition of required factors of production".

2.2 Problematic Factors of International Projects

Although the world offers significant business opportunities, there are also important challenges in accompany with these chances. The major challenging factor that international managers face during the process is that "what works at home country may not succeed in the international arena". A basic knowledge of the differences from the home country may help to reduce or overcome the obstacles. Some external factors, which might affect international projects during their life cycles, are listed below:

1. Culture: A project manager has to respect and understand the target country's cultural attitudes, values, customs and social standards. The consumer's tastes and wishes are directly related to their culture and can change from country to country (Harrison, Andrew, Dalkıran, and Elsey, 2000). The cause of failures in many projects may be attributed to cultural insensitivity for the foreign partners (Brown, 2003). Many of the international project management books especially highlight the knowing the culture of the target country. Although most of the books have explained language and religion issue under the culture heading, some take these issues separately due to emphasis their importance in international projects.

2. Language: A common language has to be selected before executing a project. Translators could be employed to communicate but it may not completely solve the communication problem because some things might be lost in translation (Gray, 2004).

3. Religion: Religion differences can also affect the process. Knowing basic rules of a religion can help to understand its follower's attitudes (Harrison *at al.* 2000).

4. Infrastructure: It refers to the target country's capacity to provide services such as communication, transportation, technology, and education system (Gray, 2004).

5. Legal and political factors: International project executives should be aware of the laws and regulations of the target country. Local laws and regulations affect the companies' operations, performance and freedom of action (Harrison *et al.* 2000). The level of control imposed from the government agencies, their effect on the duration of the project, and the restrictive degree of the local laws and regulations are important factors that act upon the project legally. Besides these, economical stability of the country can also affect the project process. (Brown, 2003; Harrison *et al.* 2000; Gray, 2004).

6. Geographical factors: They especially influence outdoor activities of the project. Before starting, the project managers have to know unique characteristics of the site. Project plans and schedules have to be prepared with regard to the target country's climate, season, altitude and natural geographical obstacles (Gray, 2004).

7. Economical Factors: Site selection and how the project will be conducted are decided upon according to the economical factors. Project managers must be well informed so that they would know how to react to financial forces that can affect the business (Harrison *at al.* 2000; Gray, 2004). Tariffs, quotas, hyper-

inflation, education level of workforce, market size, population growth are the factors influential in project selection and operation (Brown, 2003).

2.3 Problematic Factors Affecting International Design Projects

The problematic factors that affect international projects presented in the previous section may also be faced during the preparation of preliminary and final design projects. During these stages architects participate in many activities. For instance, according to Blyth (2001, p.202) and Gültekin (2004) in pre-project and project stage's key activities are;

> … the risk assessments, analysis of client needs and recourses available(including buildings affected potential planning permissions), initial discussion with the stakeholders which should include users of the building, clarify the service needs and standards, confirms the timescale and budget has been agreed, prepare project plan, then in the projects stage concept scheme design and specifications are developed, window-wall sections and details are prepared, materials and technology used selected, etc.

The client, project manager, stakeholders, local authorities, users and design team participate in these stages all together. This process is very difficult even if all of these participants belong to the same country (region), so it might be more difficult while they are from different regions.

Among those five basic problematic factors this research especially focused on first three of them such as culture which encompasses language differences, communication within the project team *etc.* (communication was discussed separately from culture by the author), infrastructure (information technologies used) and legal factors (local standards, regulations and codes of target country), from the point of view of international design project's. In the following section all these factors are defined and discussed in detail.

2.3.1 Cultural Factors:

Culture is one of the greatest challenges for project managers in today's global business environment when the international and cross-border dimensions of projects are considered (Rees, 2003). International construction projects have many professionals from different countries; all professionals have diverse political, legal, economic and cultural background (Chan and Edwin, 2003). According to Gray (1998, p.7), research indicates that "the failures in overseas setting most frequently result from an inability to understand and adapt to foreign ways of thinking and acting rather than from technical or professional incompetence".

To understand why culture is a challenging factor, one should first examine what it is. Hofstede, who is one of the leading researchers and experts on intercultural issues, defines culture as a "collective programming of the human mind that distinguishes the members of one human group from those of another"[1]. Culture is made up of learned, shared, and interrelated behavioral patterns, which reflect common values, attitudes, customs, manners, beliefs, practices, languages, aesthetics, and education which ties people together in a society and transmitted from one generation to the next (Harrison *et al*. 2000; Ahlfors, 2003). Culture makes individuals a member of the society. One's behavior, attitudes, customs, etc. reflect the society he/she lives in. Merzoug and Wassdalh (2001) state that not understanding the culture and the way how it differentiates people's way of looking at things causes breakdowns.

1. The Composition of Culture: To know culture's elements helps to comprise two different cultures and help to understand the influence of culture and cultural changes to the international business (Harrison *at al.* 2000). Following elements of culture are considered influential on international business management.

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[1] Brown A. "What is culture?" [internet, www] http://changingminds.org/explanations/culture/what_is_culture.htm

a. Language: Language as a primary means of communication is the cultural medium which includes spoken and written words as well as body language (Brown, 2003). Businesses are becoming more international and the role of language is becoming more important (Ferraro, 1998). International business organizations need effective communication in all levels, such as through workforce, customers, clients, and host government officials. As a result, ability to speak two or more languages is getting mandatory for international business managers. Although communicating through the host language is the best way, to speak all these languages fluently can not be expected from the managers. This drives the need for lingua franca, such as English. To speak a common language fluently helps managers to understand the problems and create appropriate solutions (Rees, 2003).

In some cases, although managers from different countries speak almost the same language, they may also face communication problems. Mitchell (2000, p.4) mentioned this circumstance in his book as follows;

> "An American businesswoman and a British businessman, in the pre-contract period, spoke the same language on the phone and decided to continue interviews face to face. Although everything went well up to the first face to face meeting, during the meeting none of the British businessman looks businesswoman in the eye. It was like they were hiding something. This may cause the contract not to be signed, if the Americans had not been cognizant of one subtle cultural difference: Whereas Americans believe that looking someone directly in the eye during negotiations indicates honesty and sincerity; the British believe such a gesture to be a mark of rudeness until a more familiar relationship is established."

b. Religion: For many countries, religion is one of the most effective factors for political, social and economic life (Brown, 2003). It determines society's shared beliefs, ideas, behavioral norms, motivations and actions. Holiday schedules, notions of ethical behavior etc. are all related with the religious beliefs, which are the most frequent reasons for misunderstanding for an international manager, and may lead to job dissatisfaction, loss of interest, low morale and business failure. According to Harrison *et al* (2000) influences of

religion to an international business could be determinant on even the daily working hours, whether the business would be conducted on the religious days, what kind of differences would be applied between the employment of two genders, and how much time should be allowed for daily prayers and other events of religion.

c. Education: Education is the life long process of learning, through which members of a society gain knowledge and develop skills, ideas, values, norms, and attitudes which they share with other members of society. Education is a period of study in schools and universities for self-development and improvement of career prospects and in some societies, it continues at home by the help of family members transmitting skills, ideas and attributes. Both types are very important for the creation of attitudes and development of social skills. Education is used by societies not only to strengthen existing cultures but also to prepare the society for a desired change (Harrison *et al.*, 2000).

d. Social Structure and Institutions: This is a basic framework having rules and hierarchies, which determine the role of individuals in society and relations of one to another. "Social systems include a wide variety of attitudes and acceptable forms of relationship among family members, friends and relatives, in courting and marriage rituals, class structure and respect for the national flag and other symbols". According to Harrison *et al* (2000), its components are as followings:

i. Values and attitudes: Harrison *et al.* (2000, p. 111) states that, **"**values manifest themselves in the form of attitudes that are opinions or ways of thinking reflected in an individual's behavior whereas attitudes include opinions about individual freedom, democracy, truth and honesty, the role of the sexes, justice, marriage, love, and sex". It is hard to make objective analysis of values and attitudes because they are all about individual's emotion.

ii. Attitudes towards work: In most societies, work is better organized and workers do not want to work more than normal hours and favor more leisure time whereas other societies, workers feel lucky to have a job and condone conditions (Harrison *et al.*, 2000).

iii. Attitudes towards business: In capitalist systems, an individual considers business basically as a profit-making organization whereas in Islamic social systems, business is part of an all-important personal relationship, which is based on mutual trust and respect (Harrison *et al.*, 2000).

iv. Attitudes towards material possessions: Material possession based on investment, technology, innovation and a constant quest for increased productivity and efficiency and wealth often determines the individual's social status. The differences in material possession especially depend on religion and other elements of culture (Harrison *et al.*, 2000).

v. Attitudes towards time and the future: Differences in conceptions of time between members of different cultures can have significant effects on a business relationship. In most western and capitalist societies, time denotes punctuality, precision, and routine in scheduling business activities and basic view is that people can influence and even control the time. Every day business activity is timed in terms of hours, minutes, days, months, and years. To waste time means to waste money. Punctuality is the most important characteristic that every manager has to have. For example, managers in the United Kingdom are extremely time conscious and viewed time as a limited resource that must be managed with care. In contrast, managers in Thailand consider time to be an abundant resource and tend to place less emphasis on punctuality and strict contract deadlines (Brown, 2003). On the other hand, in Islamic countries the future is fatalistic or predetermined: individuals are born with a predetermined future that they are powerless to change or modify (Harrison *et al*, 2000). These different attitudes could greatly complicate contracts regarding scheduling, etc (Brown, 2003).

vi. Manners and customs: Manners are appropriate patterns of social behavior, which members of a society display in their daily lives. Customs are what individual members are expected to observe in given circumstances. Manners are very much part of an individual's character whereas customs are what society collectively expects its members to do (Harrison *et al*, 2000). What is appropriate and inappropriate differs from culture to culture such as how much physical contact is acceptable, how much physical space people expect, how formal the meetings are (Mitchell, 2000). Understanding manners and customs is particularly important during decisions and negotiations. Bodily expressions may contradict to what is being said or implemented. In Middle Eastern cultures men greet each other by kissing on each cheek or walk arm in arm both of which are inappropriate in some western cultures (Harrison *et al*, 2000).

According to Merzoug and Veronica (2001), Geert Hofstede states that culture has many layers such as gender, generation, social class, and could be thought as regional, national and organizational that helps us to understand individuals. Within this thesis, national culture is mentioned because of the fact that most problems occurred in multi-cultural projects due to cultural differences of the people involved.

2. Types of National Culture: Several authors have developed dimensions to enable the understanding how cultures differ. Geert Hofstede's, four culture dimensions, is one of the most well-known classification. He has derived his four cultural dimensions of cultural variability from empirical studies of a multi-cultural corporation (IBM). Each dimension has a very real effect on how people process information and interacts, either personally or with business colleagues (Mitchell. 2000). Thus, they provide an important framework not only for analyzing national culture, but also for considering the effects of cultural differences on management and organization (Pheng and Yuquan, 2002). These dimensions are described as follows:

a. Individualism-Collectivism: Mitchell (2000) states that accepted values of society indicate whether individuals are free agent or are the members of a group. According to Merzoug and Wassdahl (2001), Gudykunst states that individualistic societies focused on individuals' goals whereas collectivist societies focused on groups' goals. In collectivist societies, individuals take approval of any decision that they will make. The success of group is more important than the personal success. For example, American executives measure their success through pay and peaks; Japanese executives through the overall success of their company and the contentment of employees (Mitchell. 2000).

b. Uncertainty avoidance: This focused on, especially, how individuals cope with unknown and unfamiliar environment. The degree of an individual's admittance, tolerance and contract to cope with unfamiliar situation, changes from society to society. In high uncertainty-avoidance societies, how to cope with uncertain and ambiguity situation is explained by many rules, whereas in low uncertainty-avoidance countries less emphasis is given on structured and collective methods of uncertainty and ambiguity avoidance (Harrison *et al.* 2000). High uncertainty-avoidance societies have less tolerance to uncertainty and ambiguity. In low uncertainty-avoidance societies, members are less-stressed and individuals are encouraged to take risk (Merzoug and Wassdalh 2001).

c. Power Distance: According to Harrison *et al*. (2000), it refers to the level of acceptance and tolerance of the unequal distribution of power and the relationship between those who have power and those who do not. In high power distance cultures, power and authority are accepted and obeyed without questioning. On the other hand, in low power distance cultures power and authority are less acceptable and are less tolerated and institutions exist to distribute power and authority more equally (Harrison *et al.* 2000). This cultural dimension describes the role of individual in decision making. Employees in high power distance culture need direction and discipline

whereas in low power distance cultures individual accepts more responsibility (Mitchell, 2000).

d. Masculinity-Femininity: Harrison *et al.* (2000). states that masculine values include achievement, material possession, assertiveness, success, money, individualism, and ambiguity. On the other hand, feminine values signify caring, helping, more interest in environmental issues, quality of life and family values (Harrison *et al.* 2000). Individuals in masculinity societies have stronger motivation for achievement. Their work is the center of their life and they have high work stress. Genders' roles are clearly distinct whereas in femininity culture gender the roles overlap. In masculinity societies, success is the function of the individual and society is made up of leaders and followers (Merzoug and Wassdalh, 2001. Mitchell, 2000).

3. Cultural influence on contract: Written contracts show different characteristics depending on the cultural differences so that they might mean different. While Americans and Germans generally insist on complicated contracts, other cultures with limited legal structures such as Nigeria and China, would assume contracts as more of a statement of intention rather than a formal binding obligation (Mitchell. 2000).

Followings are examples of how different cultures approach the concept of the business contract (Mitchell, 2000, p.147):

> • United States: Contract law is probably the most complicated and exhaustive (as well as the most frequently used) body of legislation on earth. Contracts are long and generally cover every conceivable contingency.
> • France: Contracts tend to be rather long and completely in French. Even commonly used foreign words such as Internet and computer cannot be substituted.
> • Germany: Contracts are even more detailed than those in the United States. Once signed, they are strictly adhered to by the Germans and they expect the same from the other participants' stakeholders' etc.
> • Egypt: Contracts are regarded as guidelines for business relationships rather than as specific performance requirements. The content may be

renegotiated, revised, and appended many times to reflect changing circumstances.
• Japan: Contracts are guidelines and any problems are arbitrated rather than litigated. Every contract will include a "jiji henko" clause that permits complete renegotiation if circumstances change.
• Indonesia: Like many Asian culture chapter 1es, Indonesians assume the contract as a set of guidelines. Although the signing of a contract may be accompanied by great fanfare and celebration, it shouldn't be assumed that the provisions will be met automatically.
• Russia: It is important to remember that it may not mean anything to have signed a contract with a Russian firm. Russians have a different view of contracts than Westerners and see contracts as more a statement of intention rather than as a formal binding obligation with penalties. Russian business law, while improving, is still not sophisticated enough to deal with suits stemming from broken contracts.
• Argentina: Contracts are more a matter of personal honor than a company commitment. Appealing to the signer's personal honor is a more effective strategy than employing lawyers.

2.3.2 Communication:

To emphasis the importance of good communication within the project team this issue handled separately from the culture. Construction industry is a multi-organizational industry, which includes various combinations of architects, engineers, contractors, subcontractors, material suppliers, equipment providers etc. Communication is such an important activity in construction projects -as well as it is in daily life- that effective communication network has to be established within the project team members to control cost, schedule and quality, to achieve stated objectives and the satisfaction of everyone involved. (Wideman, 1983) Robbins (1988, p. 403) states that "the best idea, the most creative suggestion, or the finest plan cannot take form without communication". Any misunderstanding or any gap in sharing information may lead higher cost and time lost.

Many descriptions and definitions have been developed to explain the meaning of communication. According to Paasivaara (2001, p. 2); "*Communication* includes all interaction and information exchange between parties. Examples include verbal, written and electronic information exchange, such as the

transmission documents". Another description comes from Rogers and Kincaid as: "a process in which the participants create and share information with one another in order to reach mutual understanding." (Emmitt, Gorse, 2003; p.34)

Architectural design teams are mostly unique, temporary, multi-disciplinary, distributed teams with a client and a diversity of stakeholders in a building project process. Through this process, lots of forms of information, detailed drawing files, photos and illustrations, analysis charts, contracts, schedules, etc., are created. This led to the need for the management of the design process and information handling between the participants in the design team. According to Otter and Prins (2002) aspects within this process make important improvement of the information exchange and flow. These aspects can be classified as;

- *Design object aspects:* complexity and volume of architectural projects, growth of the volume of information, changes and risks to mistakes in design.
- *Team aspects:* time pressure to the design process, number of the design partners, differences in information behavior of design partners.
- *Information exchange aspects:* number and variety of digital and non digital information systems, speed of technological progress.

In the following, communication process, communication barriers, levels of communication, and effective communication will be defined in detail.

1. Communication Process: The communication process involves some basic elements, and supervisors can improve communication skills by becoming aware of these elements and how they contribute to successful communication.

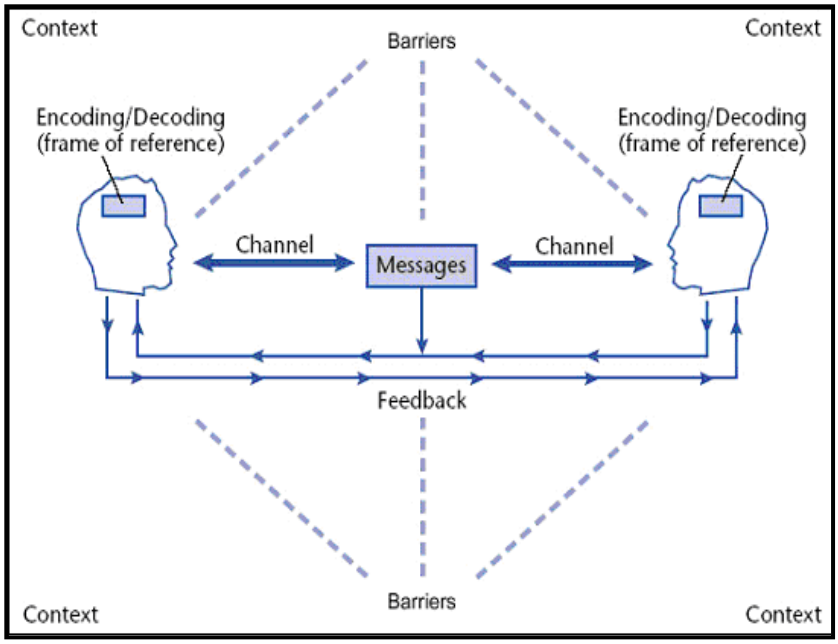

Figure 2.1 Communication process

Source: Pearson Education[2]

According to Nick Sanchez the elements of communication are classified as;

- *Sender:* The sender is an individual, group, or organization who initiates the communication. The sender is responsible for the success of the message and his or her experiences, attitudes, knowledge, skill, perceptions, and culture influence the message. For example architect's office, sending drawing, schedule or written specifications to project participants, is the sender in this process.

- *Message:* This is an encoded idea that is transmitted in an appropriate communication medium through an appropriate communication channel. The message may vary in complexity from a simple drawing,

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[2] Pearson Education. An overview of Communication [Internet,www] Adress: http://www.ablongman.com/samplechapter/0321088239.pdf [Accessed: 12.01.2005]

sketch or text to complex high detailed drawings, schedules or written specifications.

- *Communication channels:* These are the means used to convey the message. It can be verbal including face-to-face meetings, telephone and videoconferencing; and written including letters, e-mails, memos and reports. The effectiveness of the channels varies depending on characteristics of the communication. For example if immediate feedback is needed oral communication channels are more effective to clear uncertainties. If the message must be delivered to more than a small group of people, written channels may be more appropriate.

Emmitt and Gorse (2003) classify the channels, as formal and informal. *Formal communication channels*, the accepted system of communication within the organizations, are official sources of information, e.g. prearranged meetings and management systems. These systems are structured to record information exchange by means of information technologies. Informal communication channels are routes of communication different than those identified by organization e.g. corridor or telephone talk or chat. Informal communication channels emerge through friendships or contacts between individuals who are willing to corporate. Differences between formal and informal communication channels related with the degree of control. Formal systems of communication are controlled and organized, whereas informal communication systems are largely unstructured.

Formal communication within the design process is important to discuss, clarify and confirm the project or process. Informal communication is also very important for designers for discussion and interaction about design and solutions. Nature of design process, depending on implied knowledge and intuition, uses drawings and sketches as the key information carriers of design to create a collective coherent and consistent understanding of the project' knowledge base. (Otter and Prins, 2002)

- *Receiver:* The receiver is individual or individuals to whom the message is directed. Their understanding of the message depends on how much receiver knows about the topic, their receptivity to the message, relationship between the receiver and sender and their experiences, knowledge, perceptions and culture.

- *Feedback:* is the final point of the process. After messages are received, the sender respond in some ways including, spoken comment, writing message, a smile, any other action even a lack of response. Feedback is a key component of the process because it allows the sender to confirm the message received properly or not and to evaluate the effectiveness of the message.

2. Communication Barriers: Successful and effective communication within the organization is achieved by implementation of communication process. There are wide number of physical and physiological barriers through the process, preventing understanding of the message. They act as the limiting factors in transmission of the information, either from the sender to receiver or in the feedback process from receiver to sender.

Although communication barriers classification varies among the authors, common barriers according to the majority of the authors can be classified as;

a. Language and cultural barriers; Language is a vital element of communication and involves abstract notions, actions and events. Interaction between construction professionals depends on language and codes used and how they are received and interpreted. In international projects, designer must be able to present their ideas, the value of their design and the value of the services they offer. Language is important and necessary part of communication to explain and understand the subject.

In the temporary project organization, culture of social system(s) and individuals, drawn from a variety of educational and cultural backgrounds, affects design process also. Each member of the team has different agenda, goals and experiences, which may differ from each other. Designers should provide information flow considering cultural values of participants for effective communication process. (Emmitt and Gorse, 2003)

b. Physical barriers: How we feel about our physical surroundings influence how we communicate. If the receiver of the communication process is working in a noisy, cold or very hot work area, he/she may not be concentrate on the given information. The level or comfort or discomfort affect the time of communication or decision making behavior.[3]

c. Emotional barriers: An emotional individual may not be able to communicate well. If someone is angry, hostile, resentful, joyful, or fearful, that person may be too preoccupied with emotions to receive the intended message. If you don't like someone, for example, you may have trouble "hearing" them.[4]

d. Channel barriers; According to Emmitt and Gorse (2003), "to ensure that a message achieves its desired effect, it is essential that the method used to transfer information supports the communication process. The choice of media to achieve information transfer will depend on the nature of the situation and the parties involved in the communication act." If the sender chooses an inappropriate channel, communication may cease.

According to Fryer (1990) in some circumstances communication fails, because of the following seven factors:

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[3] WILSON B. Barriers to Effective Communication. [Internet,www] Adress: http:// http://www.marin.cc.ca.us/buscom/index_page0007.htm [Accessed: 12.01.2005]

[4] ibid

i. *Poor expression:* Difficulties in self expression, poor vocabulary, lack of sensitivity to the receiver, sometimes nervousness are usually what people suffer from and these causes ineffective communication because of hidden meanings and inadequate messages. Written types of communication resources, reports and letters may lead to such a problem.

ii. *Overloading:* Too much information given to staff cause confusion and misunderstandings. Especially, when the subject is not familiar to the amount, it must not be told very detailed.

iii. *Poor choice of method:* Managers should be precise about how they will transfer information. Sometimes to speak is the best way but written way generally preferred.

iv. *Disjunction and distortion:* In cooperate organizations, numerous people from various professions, attitudes and experiences work together. In these situations, messages can be misinterpreted by discrete professionals. People modify information when they try to isolate themselves from the responsibility of failure. Lack of trust leads people choose this kind of reediting.

v. *Distance:* Separation of designers and contractors, head office and project causes lack of facial expression, which is very vital for effective communication to understand each other's responses better.

vi. *Status differences:* People occupying different levels in hierarchical procedure may certainly have difficulties in communicating. People of lower rank or power should hesitate to inform top executives precisely about progress and the right time. On the contrary, head managers should consult to lower rank managers anytime.

vii. *Feelings:* In face-to-face communication negative attitudes may rise out between the sender and receiver. Positive feedback is the solution to avoid negative reaction. A skilful manager must recognize that each communication is more or less unique. He must judge the situation and use all his skills to ensure that people understand what he is trying to convey, accept it and are they become willing to act on it.

3. Effective Communication: Communication establishes relationships and makes organizing possible. Every message has a purpose or objective. The sender intends, whether consciously or unconsciously, to accomplish something by means of communication. In organizational contexts, messages typically have a definite objective: to motivate, to inform, to teach, to persuade, to entertain, or to inspire. Communication in the organization centers on well-defined objectives that support the organization's goals and mission. Supervisors strive to achieve understanding among parties to their communications. (Nokes, Major, Greenwood, Allen and Goodman, 2003)

Blyth (2001, page 68) suggests twelve tips for effective communication:

- State priorities clearly
- Be concise and clear
- Provide only the relevant information sufficient to make decisions at each stage of the process.
- Drawings, diagrams and charts can be worth a thousand words.
- Explain requirements with supporting evidence as they can be accepted, adapted or refuted.
- Provide a statement of intent that is inspirational, comprehensive and precise.
- Provide easily applied performance measures, which allow solutions to be assessed.
- Use the appropriate language for the audience to be addressed.
- Prescribe previous solutions where they are well-tried, tested and successful.

- Communicate measures for the success in both building and business terms.
- Check the relevance of information provided by ensuring it allows an appropriate design response.
- Express limited number of key objectives.

Good communication consists of both transferring explicit message and understanding the response clearly. It leads to efficient working, good morale and project success. For good and effective communication, there are some important conditions that should be considered. In some cases, there may be only a short time till deadline requiring everything in brief instead of detailed explanations. The manager has to establish trust between workers so that they could share information in between themselves without any suspects. Moreover, the manager should form good communications with the design team; in other words he should listen to them when they establish any relevant information. (Nokes *et al.*2003)

4. Levels of Communication: Communication is used by individuals and organizations to achieve a number of objectives, and to establish and maintain relationships. Communication holds a central position within organizations. Emmit and Gorse (2003) classified the levels of communication as;

Table2.1 Levels of communication

Source: Emmitt and Gorse, 2003; page 45

Process	**Number of people involved**
d.1 Intrapersonal communication Includes the knowledge that another person is able to process information, which provides the initiator of communication with the knowledge that he or she can communicate with a person	Only one person involved. It is the thought process of one person either when they are alone or communicating with others. Intrapersonal communication may be used when one person makes a decision.
d.2 Interpersonal communication Communication directly between two people enables individuals to establish and maintain relationships. Intrapersonal and interpersonal communication functions enable information to be processed and joint decisions to be made.	Generally two people. The message is intended only for one receiver.
d.3 Group communication Messages are sent to the group, they may be presented in a way that addresses the whole group or individuals within the group. Message may be interpreted, processed, by individuals within the group in different ways.	More than two people but limited to a single group of people. Communicator may address the whole group or individuals within the group. Even when individuals communicate within a group this action will be communicated to the rest of the group.
d.4 Multi-group communication A person or group communicates a message to a number of different groups or sub-groups, the response to the message may be different depending on the group's motivations and norms (below, this type of communication was discussed extensively regarding construction project teams).	Although communication of this nature targets a number of groups or sub-groups there is an element that the messages are largely contained within the specific groups, e.g. departments within an organization.
d.5 Mass communication Messages are sent through media – radio, television, and newspapers or to large audiences. Individuals and groups of people receiving the message may attach different meanings to it depending on their culture and norms.	Little control of who and how many receive the message, group can be targeted, e.g. television viewing at a particular time. Professional journals are used to send information to their professions.

d.4 Multi-group communication regarding construction project teams: As it is previously mentioned, construction projects involves many participants. Good communication between these parties essential for the success of the project. Here success indicates completing project within estimated time, cost and fulfill projects objectives.

Communication in a project team starts with the need of any client and user. After reaching decision about needs and resources, which form objectives, communication with the design team starts. While communicating with the design team client uses text or diagrams whereas design teams use diagrams, drawings, sketches, models and photographs while communicating with the client (Blyth, 2001).

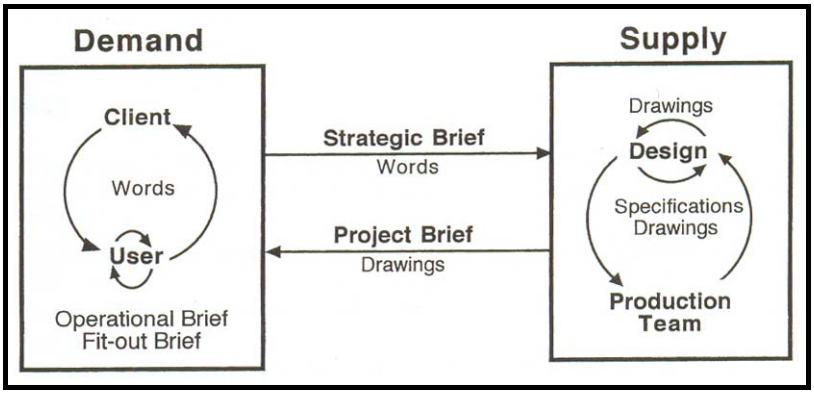

Figure 2.2 Model of the four principle communication routes.
Source: Blyth, 2001; page 54

According to Blyth (2001) communication between supply and demand sides happens for various reasons:

- to get information
- to get a decision
- to share understanding

Besides the meetings of supply-demand sides, some arrangements could also be held with other disciplines that are not directly related with the projects such as local staff, planners, *etc.* (Nicholson, 1999).

According to Nicholson (1992), J.E.S. Dale states that in the construction industry there is a lack of teamwork, communication and coordination. He illustrates the communication system within a construction team as a honey-comb. Firstly, all have their boundaries and routes of access to others. Any decision change affects the whole process. Secondly, like bees producing honey, all parties working towards the same end, to produce a building which satisfies the customer. Thirdly, bees have a job plan and good communication. Similarly, project teams have a job plan but good communication is usually not possible to achieve. Good teamwork needs good communication and coordination which are depending on the following factors:

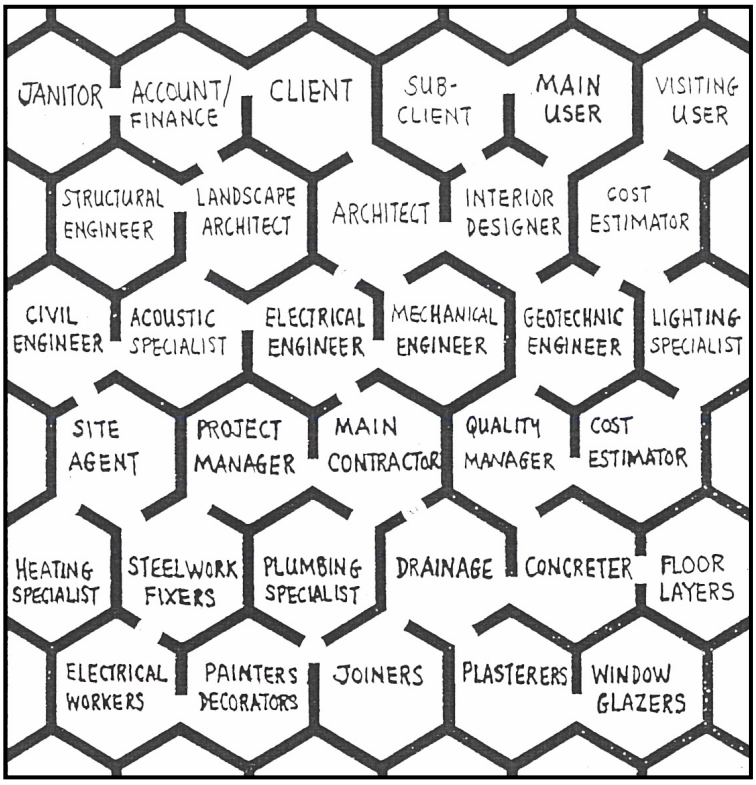

Figure 2.3 Client-Designer-Contractor: Communication system

Source: Nicholson, 1992; p.227

i. Avoiding Problems Due to Lack of Communication: Lavers states that when the client is inexperienced or ignorant, it is generally the designer who is trusted. In this circumstance, the client couldn't state his/her ideas explicitly. Because of the lack of explanation of his/her wishes and beliefs, the designer has to make assumptions or decisions which may not match with client's real wishes (Nicholson, 1999). At the beginning of design phase, enough meetings should be arranged to describe the objectives, requirements and decisions of the client and the user(s) exactly.

On the other hand, in some circumstances the designer may be inadequate, too. Project fails, in other words, desired results and liability couldn't be achieved. Client might feel betrayed and resentful. When the project fails no party accepts the responsibility unless the decision or objectives which are taken during dispute are recorded in written format.

ii. The obligation of communication and clarification: Analysis of legal cases has shown that building failures could be due to mismatch of knowledge and expectation. Poor communication may result in buildings fail to meet the specified performance requirement. Laver argues that absence of communication results disputes and claims between client and designer. There is a need to ensure that when decisions are made, the agreed objectives are understood by all and their effect on the final product is anticipated and understood by the all project participants. (Emmitt and Gorse, 2003) Good communication has to be established from the beginning of the design. In some cases, especially in complex projects, designer cannot undertake design of every element personally. This encourages the use of procurement system, which anticipates the delegation of design tasks of different elements of building. But, when a part of delegation starts to take the role of principal designer (lead consultant) problems starts. Lavers gives an example to explain this situation; "in the Canadian case of District of Surrey and Carroll-Hatch and Associates, the British Columbia Court of Appeal held both an architect and a consultant structural engineer liable to their client, a municipal authority,

following serious subsidence caused by negligent foundation design. The engineer, conscious of the volatile soil conditions, advised the architect of the need for a proper soil investigation. The architect replied that the client would not pay for such work. Crucially, this request by the engineer was not communicated by the architect to the client. This omission to communicate such a vital request ensured that the architect would be held liable. It may be observed that the engineer also held liable because he allowed his very limited notes to be transmitted to the client without clearly warning of their inadequacy. Again, a duty to be pro-active in communication had been neglected with disastrous consequences." (Nicholson, 1999; p. 70) This indicates that the neglected communication cause unwanted situations.

The role of communication in design development is to bring the expectations of the parties together. Therefore, the designer better understands the client's ambitions and beliefs and can respond to them in what he/she produces or can seek to modify them if they cannot be met. In some countries there is a legal obligation that designer has to clarify the client's objectives and thus the design brief. After having decision on objectives, these bring together as a written document. Both designer and client have to comply with these rules. Besides these clients may want to change some materials, which are selected for construction, and may prefer improper materials. In such cases architects have to give advice and don't allow the client to make decision on materials by himself. Architects have to explain the degree of risk in alternative options and advise on choice. These are legal liable for designer. (Nicholson, 1999)

iii. Managing the client: Client's needs shape the design process and during this process client is the major team member. Client's contribution has to be controlled and has to be timed to suit the design process, so that the correct information is received on time and variations would not occur because of the lack of proper consideration at the appropriate time. Client's organization's main task is produce sufficient information at the right time to the design organization, to enable the design process to proceed. Client has to be aware of

the needed information at the correct time. Client or his representative should be involved in regular design meetings, have an input and agree to the program.

Design process has many stages. The most important thing is to take acceptance from the client body for each major stage. According to B. Sawczuk after taking acceptance of scheme design from the client, detail design and production information, specifications, are started to be developed. Not only in design stage but also during construction communication has vital importance. During construction stage designer should have good communication with both client and contractor. Thus, any needs for modification could be detected earlier and could be revised before construction (Nicholson,1999).

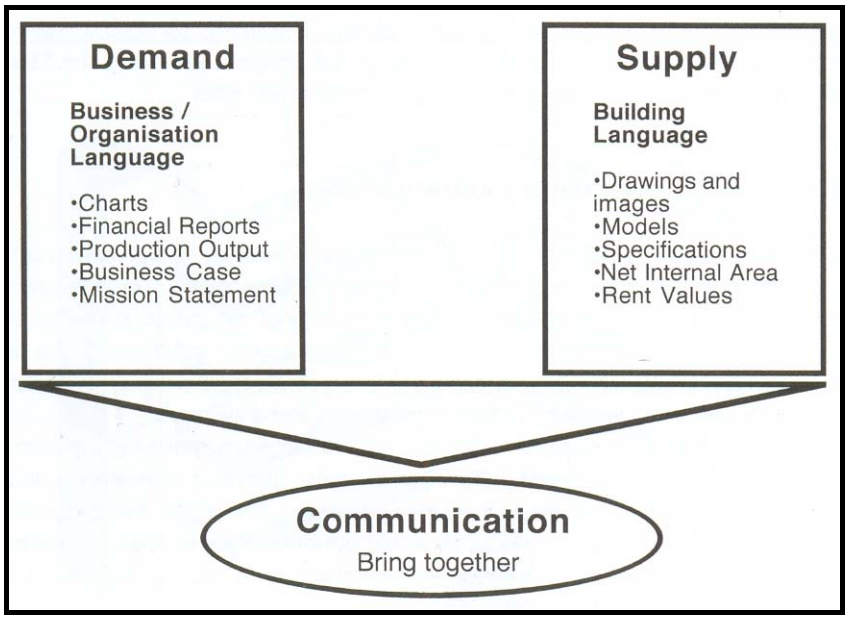

Figure 2.4 Communication between the groups.
Source: Blyth, 2001, page 61

There are several reasons for poor communication between designer-user and client. If client is inexperienced of construction, designer has to dominate the discussion and vice versa. In this circumstances designer has to spend some

time with the client to explain design process and kinds of information that has to put by the client. Language is another obstacle between designer and client. It should be defined in between them. Besides, people form different disciplines are hard to agree on a subject quickly. For this reason it would be better to reconcile on premises at first. To accomplish a good communication, the factors that cause problems have to be found out by the sides initially. (Nicholson, 1999. Blyth, 2001)

5. Means of Presenting Information Used by Designers: Designer use some ways to present the information they formed. These can be classified as followings:

a. *Drawings-plans, elevations, sections*: these represent buildings but since they show the relationship between rooms and elements by means of only windows and doors; it could be difficult to appreciate the spatial implications of the design.

b. *Perspectives:* these can be drawn in different styles with more or less detail and convey an interpretation of what the buildings will be like.

c. *Axonometric, isometrics:* these are not the same as perspectives, and in many ways are false representations, although often presented as if they represent reality.

d. *Images-photographs, montages, computer-drawn, virtual reality:* computer software_developments enable designers to produce sophisticated images. They are an interpretation of reality such as to montage a proposed building onto an existing environment.
e. *Models and mock-ups:* many designers, users and clients find it easiest to work models and mock-ups. Basic card models can be a very useful way of discussing a building, giving a feeling for the shape and size of volumes.

f. *Briefing :* involves understanding the client's needs and expressing them in a way that will ensure compatibility between the client's vision of the project and the resulting product. Following are some tips for a good brief as laid out by Emmit and Gorse (2003, p. 20);

- expresses the goal and inspires the design team;
- doesn't get too detailed too soon;
- only provides the relevant information required to make the relevant decisions at each particular stage of the design process;
- continually refers back to the context established in the Strategic Brief; doesn't make promises which cannot be fulfilled;
- presents information in a way that can be acted upon;
- describes requirements so the design response's success in meeting the client expectation can be measured;
- provides performance specification where fresh ideas are called for, and prescriptive solutions where successes from the past can be repeated.

Communication is the major activity in construction. Successful organizations have effective transfer of information. In construction industry information is usually prepared by individuals from different backgrounds, such as architects, engineers, contractors etc. often using different terms and methods of graphical representation. Thus, verbal communication between two or more individuals is often concerned with resolving queries over the interpretation of the information provided (Emmitt and Gorse, 2003).

2.3.3 Information Technologies

The distance between headquarters and construction sites, may cause wasting of time and cost in construction projects, if the coordination is poor because of inadequate, insufficient, late information or combination of all. These coordination problems, in spite of the advancements in information management, storage and exchange technologies, point out the importance of communication**.** (Tam, 1999)

Good communication and information flow is essential to reach well built products, which satisfy client's requirements. For example, architects' informational needs vary through the different stages of the project and all information should be up-to-date and relevant at each stage. Well-defined controls and filters should be applied to information flow to prevent information overload. (Emmit and Gorse, 2003)

In a world of increasing information flows, data retrieval is becoming more important. Information technologies (IT) such as electronic machines, software, networks and even telephones and fax machines are involved in all information processes, for storage, transfer and presentation of information. IT is not a single solution or technology but technical approaches to variety of problems.

The basic purpose of IT is to facilitate the exchange and management of information. And the recent developments in IT have profound impact on how organizations operate on a daily bases. (Rivard, 2000)

Basic IT solutions, which are used in design and construction, can be listed as below;

1. Computer-aided design tools and visualization,
2. Project management and scheduling software,
3. Electronic data interchange tools, e-mails,
4. Telnet and FTP,
5. Internet, World Wide Web,
6. Intranets and extranets,
7. Internet chat, video conferencing systems (Johnson and Clayton, 1998)

1. Computer Aided Design tools and visualization: Drawings are one of the main media of construction industry, to transfer information to all members of project and building team, designer, engineer, contractor, owner, etc. Drawings, with its ranging complexity from a simple sketch to complex

detailed ones, are means both to improve the design and to share the information between all disciplines, to realize the project. (Emmit and Gorse, 2003)

From the early 1980, Computer Aided Design (CAD) tools have been used in construction industry and design offices. Its layer – based structure, with its similarity to traditional layer drafting techniques, make it very useful and many constructional documents and shop drawings are made by using it. With the developments in technology, digital file formats, i.e. cad drawings, have lots of advanced characteristics like the ability to geometrical modeling of the building in three dimensions, creating automatic section drawings and storing and managing building information as databases and generating schedules etc. By the help of internet, e-mail, File Transfer Page (FTP) sites, sharing and delivering of drawings and documents led Web-based project management and its collaboration services. (Schep, 2003)

Improvements in 2d CAD technologies and software, have noticed the need for visualization tools working with the drawings or elements of 2d software used. In recent years new visualization tools, like 3D CAD, 4D CAD (3D + time), virtual reality software, started to be used in construction and design process. By the help of these tools and software designer, team, contractor and owner can view information from any points and even walk around the project in virtual manner. In summary design and construction projects need tools, which work in several levels of detail, and gives information about the project in commonly understood format, like images and animations.4D modeling (3D cad + time) systems improve the designer ability to maintain up-to-date models, reflecting immediate design and schedule changes. (Schwegler B., Fischer M., Liston K., 2000)

2. Project management and scheduling software*:* A web based project management and scheduling software provide project manager with identification and monitoring of the network tasks, e.g., resource requirements

and costs, establishing priorities, planning and updating schedules and measuring project performances.

The features of management and schedule software are;

- Monitoring scheduling and network planning: the monitoring function must provide reports, in right frequency and sufficient detail to identify and correct problems on time.
- Resource management: performs resource loading, leveling, allocation etc.
- Budgeting: associates cost information within each activity
- Cost control and performance analysis: the reports include, information about overall process of project, percentage of work completed, cost analysis, showing budget and actual cost relation. (Badir, Founou, Stricker, Bourquin, 2003)

3. E-mail: Electronic mail allows user to send messages to individuals or to all group by a single mail, reaching any place of the world, where internet is available. E-mail programs automatically recognize the incoming mail from any sender, and directly convert it into format appropriate to receiver mail program, by avoiding any interruptions. Users can attach any kind of files, acceptable in size, and send it to other members of systems included in project process to inform about immediate notifications. For example in design process when a part of project is to be revised and the engineer's approve is required, an e-mail to which drawings or sketches attached, could be send to obtain an immediate reply about the subject.

4. Telnet and FTP: During the design and construction project process, an integrated database can provide a central repository system for storage and exchange of data for the various disciplines, client, designer, contractors, and suppliers, included in project process, to ensure consistency of all information.

The major data exchange tools provided by the system include Telnet and FTP. Telnet protocol allows a user to log in to a remote host from his local host computer to enter and use any data allowed by remote host. In this system supervisor can observe people who have logged into the network and information retrieved, including date, time and place, can assign authority and permission in using any files to any users, and even can send data to any user who requires specific information. FTP (File Transfer Protocol) is a way of transferring files across the internet from one computer to another, even if operating systems and data storage formats of computers are different. FTP transfers uses password protection to enter directory, for the security of information and includes any kind of information, drawing files, image files, program files, document files etc.

These data exchange tools are so important to overcome the problem of distance between the construction site and headquarters. For example, users can log into their account in Moscow and can reach and view cad drawings or image files, large in size to be sent by e-mail, from headquarters in Ankara. (Tam, 1999)

5. Internet, World Wide Web: The World Wide Web is basically collections of hypertext organizations of information in an internet environment. The principle of it is a set of communication protocols and a standard for hypertext documents originally made for sharing of information in an environment, which is not homogenous. The most important and advantageous properties of information published in HTML format is that, it can be reached easily and directly by anyone having a computer with an internet connection. HTML files can be easily created by even a modern word processors, (Microsoft FrontPage or Netscape Gold) and latest versions of major software (AutoDesk, Microsoft etc.) have web functionality “add on’s” , including sharing of files on internet and, announcements of new versions of product etc. (Line, 1997)

6. Intranets and Extranets: Developments in IT make possible to communicate from geographically remote locations, and provide an effective tool to manage large quantities of information via intranet and extranets. Intranets, is a closed communication network, allowing users to reach only information on the system, e.g., Local area network (LAN). It is used in an organization to assist their employees with a limited amount of access to external information, regular suppliers, through the life of a project, and closed after project completed. It has a firewall (security system), which prevents unwelcome visitors from outside of organization. Extranets are more sophisticated and hosted by a particular organization, e.g. project managers, which are already using intranet technologies. Organizations, working on a project, can access to certain part of the host organizations intranet to share information and collaborate more effectively. In this system project partners can also use selected parts of the host organization's collective knowledge base to improve knowledge and procedures. (Emmit and Gorse, 2003)

7. Internet chat and Videoconferencing: A videoconference connects two or more sites with audio and video links so that participants can converse, interact, and share documents.

Figure 2.5 Virtual On-line Design Studios

Source: Z. Turk[5]

[5] AHMAD I., S. Azhar, S. M. Ahmed, Web-based Construction Project Management: Current State, Trends and Potentials. [Internet, www] Adress: www.fiu.edu/~sazha002/research/web-paper.pdf [Accessed: 12.12.2004]

Goals of using IT in Architecture, Engineering and Construction (AEC) can be classified as follows (source):

i. To improve efficiency of daily works
    - improve productivity
    - share information

ii. To increase the ability of management and control
    - computerize and standardize
    - achieve the goals of schedule, quality and cost
    - control budget and cost

iii. To improve the quality of managerial decisions
    - timely information supply
    - accurate information
    - management performance

2.3.4. Building regulations, standards and codes

According to Yücel (2002), Hunt JR defines the practice of architecture as professional activities of architects required for the creation and construction of buildings and their environment. These activities include not only consultation, analysis and design necessary for the creation of the buildings and environment, but also the preparation of graphic and written documents that clearly show the intent of the design, and administration of the construction to ensure that the intent of the design is fulfilled and also the selection of the materials, equipment, and systems for buildings and their environment. While preparing these documents and selecting appropriate materials, equipment, and systems suitability with the local standards, regulations and codes have to be considered. This phenomenon gets hard to control while executing business abroad. According to Pressman, Barry Yatt states that the more design professional have the knowledge about the codes, the more they can control the design. It is hard to expect from the professionals to know all the codes but

he/she should make sure that they have good consultants, employees or team that to do the necessary corrections on the project. Architects sometimes complain about the difficulties of the regulations but they should know that it is more difficult without any guidelines (Pressman.2001).

Yücel (2002) explains that, "*standards* are documented contracts containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit purpose." Again she states that each country has its own standardization organization like; British Standard Institution (BSI), Deutsche Institut for Normung (DIN), Association Francaise de Normalisation (AFNOR), Türk Standartları Estitüsü (TSE), etc. Construction standards are set of documents that are important within the framework of building control and design activity (Beeby.2000). Stima and Kanyeto (2003) describe standards as "precise and authoritative statements necessary to ensure that a material product or procedure and services are fit for the purpose for which they are intended. Standards and regulations must at least give as mush information as possible on a given area of interest in construction so as to guarantee safety of a building with reasonable cost implication".

According to Stima and Kanyeto (2003) there are two main types of standards;
1. Fundamental standards: These are standards, which deal with units of measure (e.g. kilograms, meters) terminologies, symbols, methods of measurements and classification.
2. Applied standards: These are concerned with the quality of materials, products, and components with methods of testing, sampling and quality control and codes of practice for design, construction and maintenance. Applied standards divided into two groups:

a. Natural standards: These are standards, which have come into existence as a result of acceptance through tradition, custom and habit. Some of standards have no rational theoretical basis but have given satisfactory performance over a very long period of time.

b. Organized standards: Standards, which result from planning, include all building standards.

If a further classification of organized standards was taken, it can be found that there are two more categories, which exist, these being technical and managerial standards. Organized standards divided into two groups:

i. Technical standards: Technical standards usually relate to the methods of testing, specifications of building materials and code of practice for design. Building standards fall in this group.

ii. Managerial standards: Managerial standards give details of the process of construction.

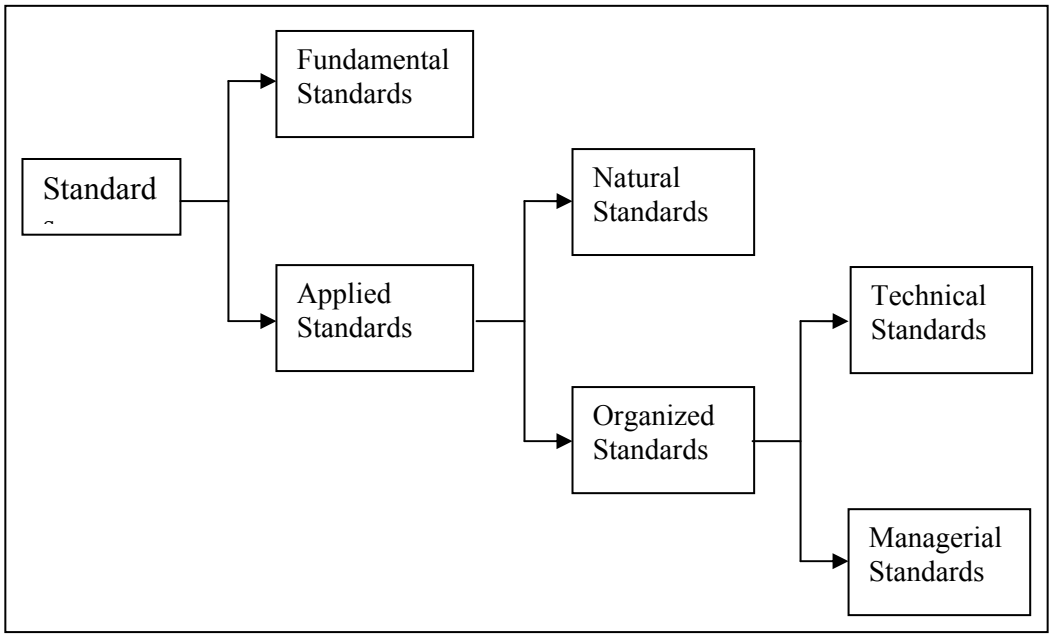

Figure 2.6 Categories of Standards

Source: Stima and Kanyeto, 2003

Building standards are fall within the technical standards group and classify into four groups (Stima and Kanyeto, 2003):

i. Minimum Standards: According to Stima Turner these are the standards which are mandatory and stipulate in any type of design and

construction for to be accepted. They are minimally desirable and feasible.

ii. Desirable Standards: These are the standards which describe what average is and define the features that ensure a product or a service is fit for its purpose.

iii. Temporary Standards: these are the standards which are meant for a particular time period usually one year and are usually under special circumstances.

iv. Emergency Standards: emergency standards are those which apply only when very critical conditional can be anticipated during the running of the building. And they point outs that standards for means of escape and safety can be cited as emergency standards and shouldn't be quoted as precedent in normal times.

Regulations are set of requirements whose aim to ensure safety, health and welfare of people in or around the building (who use buildings) by providing functional requirements in the design and construction of buildings (Aj+ Architects Journal. 2004, A guide to the building regulations. 2004). For instance in England, they apply not only new buildings but also existing buildings especially when to change its use, material and while adding extensions (A guide to the building regulations. 2004) and in USA they apply to new construction, new edition to an existing construction, alteration to an existing building, demolishing and in cases where land is being excavated or filled in or where a sign being installed (Perseus Publishing Staff. 2003; p 68). Usually the local governments are responsible from the content of the regulations and codes.

Building regulations makes builder to use specific dimensions and materials. Designer must be sure of the materials quality and property whether they satisfy the regulations or not (Beeby. 2000). Building regulations are about;

- Structure
- Fire safety

- Site preparation and resistance to moisture
- Toxic substances
- Resistance to the passage of sound
- Ventilation
- Hygiene
- Drainage and waste disposal
- Combustion appliances and fuel systems
- Protection from failing, collision and impact
- Conservation of fuel and power in dwellings
- Conservation of fuel and power in buildings other than dwellings
- Access and facilities for disabled people
- Glazing - safety in relation to impact, opening and cleaning
- Materials and workmanship (Aj+ architects journal, 2004)

Marvin Cantor states that the primarily aim of *the building codes* are to maintain and establish public's safety, health and welfare. Buildings must have the minimum standards in order not to jeopardize any lives in community. Building codes helps to determine the size of the structure, its type of the construction and its primary use (Pressman, 2001). For instance, in England building codes are written by communities in the British Standards Institution who are proficient about given issue. Codes are written on the assumptions that the materials used in construction meet the requirements of the appropriate standards. So the standards are essential elements in ensuring adequate safety (Beeby, 2000).

Building regulations set the basic requirements for buildings that they would be safe and healthy. On the other hand, building codes are the guides to designers on methods of design to ensure the requirements of the building regulations. In England another matter to control building is British standards which specify the quality and properties of the materials. Building codes, standards, and regulations should be verified with the local or state board of Building Regulations and Standards (Perseus Publishing Staff, 2003). Before starting

construction, projects are checked and are approved by the local government officials to ensure that they comply with the local building regulations. If the project does not satisfy the regulations officials return them to the designer for the necessary modifications. Amended drawings have to be submitted in a specific time, which might differ in each country. In USA planning department stipulates (Perseus Publishing Staff. 2003; p 68);

> The city and county take into account the character of the area, road safety and traffic congestion, the need to reserve land for other purposes, and the adequacy of water disposal and sewage. It will also consider the suitability of the site, any development plan policies relevant to the application, archaeological implications, and environmental impacts. The department will also be concerned with building regulations, listed historical building and conservation areas, fire regulations, and even crime prevention and security.

Pressman (2001, page 136) outlined some steps under the consideration of building codes;

1. Determine the maximum envelope (length, width, height, and gross area above grade) of structures permitted by zoning regulations.
2. Evaluate the particular topography of the site and of surrounding adjacent site areas to see if such an envelope can in fact be accommodated.
3. Evaluate the client's needs in terms of the required area. This summary step (encompassing steps 1, 2, and 3) establishes the desired maximum building envelope for the design.
4. Classify the building by its use (B, business; M, mercantile; I, industrial; A, assembly; S, storage; etc.).
5. Using the code's height and area table, determine the maximum size of building permitted as it relates to the structural type being used. Here, alternate types of structure (1, fire resistant; 2, incombustible; 3, combustible protected; 4, mill; 5, wood frame) will be considered to arrive at the optimum structure/ building area to be designed.
6. Moving next to the structural elements table, determine the fire durability required for the particular structure involved with respect to the major elements in the building (exterior walls, columns, floors, ceilings, shafts, stairways, etc.). This is measured in hours that a particular element can resist a fire before failing.

According to Office and Deputy Prime Minister (ODPM) in England building regulations consist of sections are about definitions, procedures and the

expectation of technical performance. One who wants to carry out building work has to prove the convenience of the projects to the building regulations. For this purpose, there are two types of building control services available:

1. The building control service provided by authority
2. The building control service provided by inspectors

Unless the project complies with the regulations, local authority doesn't give the "completion certificate" and refuse the projects. After revising required corrections, designer, contractor or owner applies for the certificate again.
According to ODPM Publication prepared in 2004;

> If a person carrying out building work contravenes the building regulations, the local authority or another person may decide to take them to the magistrates' court where they could be fined up to €5000 for the contravention, and €50 for each day the contravention continues. Alternatively, on in addition, the local authority may serve an enforcement notice on the owner requiring them to alter or remove work which contravenes the regulations. If the owner doesn't comply with the notice the local authority has the power to under take the work itself and recover the costs of doing so from owner.

Again in Ireland, according to Meath County Council (Dublin);

> While the primary responsibility for compliance with the building regulations rests with designers, builders and building owners, building control authorities have powers to inspect design documentation and buildings as well as powers of enforcement and prosecution where breaches of the regulations occur. There are heavy penalties, including fines and imprisonment, for breaches of the regulations. In addition, you may find that when it comes to selling your property, you will have difficulties if you cannot satisfy the purchasers' solicitor that the requirements of the regulations have been met. Building control regulations have been made to supplement the basic system of enforcement. Two important control arrangements are provided for:
>
> - Commencement notice (is a simple notification to a building control authority that a person intents to carry out building works to which provisions of the building regulation apply)
> - Fire safety certificate

Michael Spector (Snip register, inc. Chicago, USA) explains the terms as *building regulations* are issued by government authority to supplement the federal law. A *building code* is a set of technical requirements that cover a board area such as safety. A *standard* normally contains requirements for a typical building product, material, or method. And a *specification* provides detailed technical data on a particular product, material or method.

As it is stated before, it can't wait from the design professionals to know every regulations, codes or standards of the target country. But projects are not approved by the local authorities, unless it is comply with all the necessary standards. This is one of the main challenging factors while executing project abroad. To achieve this circumstance, architects in question were gave same clues which were presented in results and discussion chapter.

CHAPTER 3

MATERIALS AND METHODS

In order to determine whether those three factors that are culture, communication within the project team and standards and regulations, which were explained in detail in the previous chapter, really affect the execution of IDP two step questionnaires were applied to the experienced architects about the field. With the help of questionnaires it is also investigated the types of problems which design professional faced during the process. In this part of the study, the material and method of the survey are given. Initially, the survey materials are defined and presented in section 3.1 while the methodology adopted for the survey and the analyses are explained under the heading of "Survey Methodology" in section 3.2.

3.1. Survey Materials

In this part, the survey materials, which are interviews and questionnaires, are explained. Initially, informal interviews were conducted with managers and design professionals of architectural firms that are executing projects abroad and are based in Ankara in order to see whether they come up with any problems during pre-design and design stages of IDP or not. The first questionnaire was prepared according to the concerns expressed by the interviewees.

In November and December 2004, a two-phase questionnaire was conducted among the architects. Twelve architects respond to the first questionnaire and ten architects respond to the second questionnaire. Trying to find out the data

of subjective responses of the architects towards their international project work environment, the questionnaires are the principal means of the surveys. The answers to the questionnaires try to figure out the main problematic factors and the level of their seriousness. The first questionnaire was prepared in such a way that it would investigate the occupational information with the first question. Then, size and capacity of the firms by means of the following four questions (2-5). 6th , 7th, 8th and 9th questions are about the architect's/firm's scope in IDP, 10th, 11th, 12th and 13th questions investigate the managerial problems during IDP, 14th question is about the information technologies and 15th one is about whether firm's has design strategies for foreign projects or not.

The second questionnaire was formatted to investigate especially the ratio of the problematic factors, which were obtained from the first questionnaire. Through the first questionnaire, some basic challenging factors were obtained such as cultural diversity, the differences in standards and building regulations, the owner, the local authority, the target country's political situation, and travels and custom problems. The second questionnaire was administered to the architects, through which these problems were rated. The answers to the questions at this stage were based on a direct scale from 0 "not at all" to 4 "extremely important" i.e., graded from least to most important factor.

The second questionnaire was composed of 9 questions, the first part (1-2) of which are about the respondent's occupational information. The 3rd, 4th, 5th and 6th questions are about the scope of architectural firm's activities/services, 7th and 8th questions are related to the rate of the problematic factors and suggested solutions to these problems. The last question tries to point out which country has the main problematic factors related to local standards and regulations. Quantitative data used for calculating aspects of architects was derived from the two questionnaires given in Appendix B.

While preparing the questionnaires Microsoft FrontPage software was used. In the analysis of data, Excel Software, Version 2002, was used. The data obtained was analyzed with respect to work experience of architects, the region in which they operate, types of projects, and size of the firm.

3.2. Survey Methodology

The survey was carried out on the managers and experienced design professionals that prepare international projects. Other members of design firms were not included in the survey.

In the first phase of the survey 24 architectural offices in Ankara were surveyed with the help of the first questionnaire. This self administered on line questionnaire was completed and returned by 12 architects. In the second phase of the survey, in addition to these 24 architectural companies, the second questionnaire was sent to 130 companies, which are member of the Association of Turkish Consulting Engineers and Architects for the second phase of the survey. However, the number of respondents was less than those of the first one. Of these 154 firms, only 10 completed and returned the questionnaire**.** Thus, the research was guided according to the results and statistical analyses of the two questionnaires together.

The names of firms which operate abroad could not be obtained from the Chamber of Architects and Association of Turkish Consulting Engineers and Architects. They did not have any information about which architectural company was executing project abroad. As a result the sample was gathered through phone calls interviews and references. The author works for an architectural firm that has international experience. In addition to interviewing the principle architect and the owner of the company she obtained names of other firms who were working abroad. Their phone numbers are gathered from the Chamber of Architects and each firm contacted was also requested to supply names of other firms. Finally, when no further names could be added to

the initial contact list, their phone numbers addresses were collected and the two questionnaires were sent to them.

First of all, the information that is gathered with the survey was tabulated as raw data. In the tabulation numbers were employed to represent the responses in the analysis and the means of the numbers were given below the tables (Appendix C). Then the data was analyzed with the help of Microsoft Excel 2002.

CHAPTER 4

RESULTS AND DISCUSSION

This study aimed to define and establish the problems faced during the execution of international design projects abroad. As mentioned before, informal interviews and two step questionnaires were carried out with managers and design professionals of architectural firms that are executing international projects and are based in Ankara. After the responses were collected, the results of the questionnaires were analyzed by means of Microsoft Excel program. While carrying out the analyses, some important parameters were taken into consideration in particular. These could be given as: the year of experience of architects, types of projects executed abroad, number of the countries where the projects are located, and the number of problems faced abroad. With these parameters some hypotheses were tested. The results are presented in Section 4.1 below.

According to the results of the questionnaire, cultural factors, communication within the project team, standards and regulations, client and local authority, and technology are the major challenges that the executives face during the design stage.

4.1 Data Analyses

According to the results of the two questionnaires, it could be said that all of the architectural firms are executing projects in CIS (Commonwealth of Independent States) countries. There was only one firm working in Australia among those that responded the questionnaire (Figure 4.2). Among the CIS

countries, Russian Federation has the greatest percentage in terms of the number of projects executed abroad whereas Azerbaijan has the smallest one (Figure 4.3). Tourism buildings are the most commonly designed type of buildings and transportation buildings are the least common. The most and the least common means of information technologies preferred by these firms are understood to be computer aided drafting programs and net-meetings respectively (Figure 4.4). The problems that have effect on the duration of the projects executed abroad, such as: clients, contracts, culture, technology, standards, local authorities and economic instability of the target country, are analyzed in detail below.

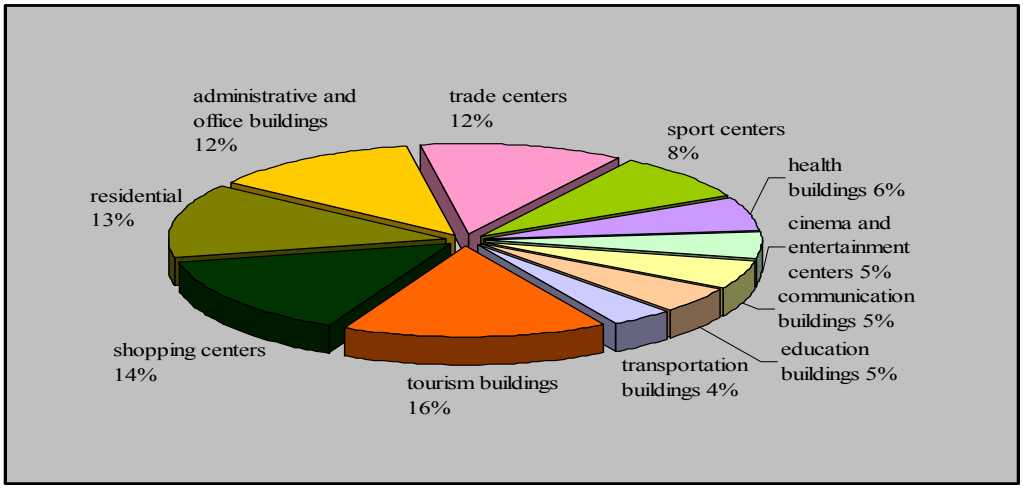

Figure 4.1 Types of Architectural projects executed abroad by respondent Architectural firms. (As a percentage %)

In Figure 4.1 it is shown that respondent architectural firms have designed mostly tourism buildings abroad. Transportation buildings cover the smallest portion among them.

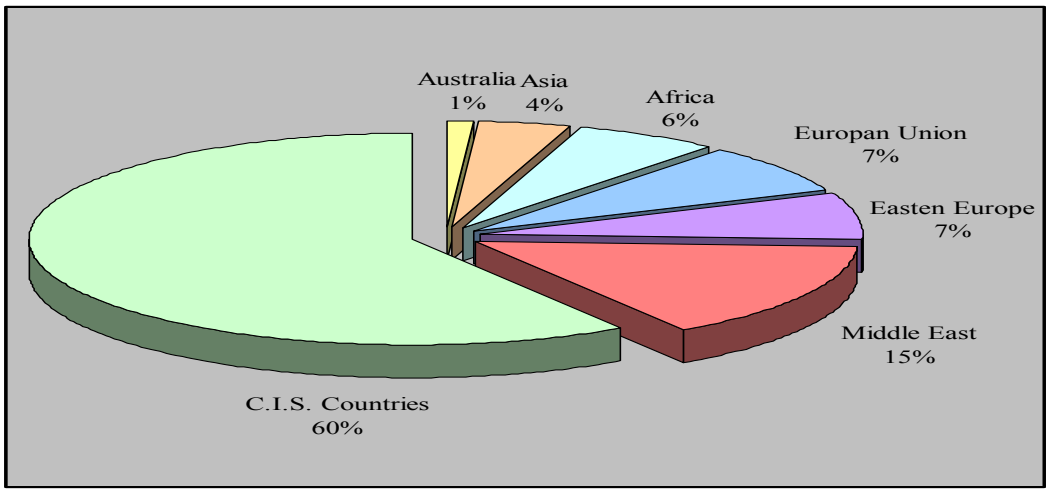

Figure 4.2 Regions in which respondent Architectural firms have executed projects

Figure 4.2 shows the distribution of projects through the regions. All of the respondent architects executed projects in CIS countries and only one of them executed a project in Australia according to Table 2 (Appendix C). As shown in Figure 4.3 Russian Federation and Kazakhstan have the largest ratios of projects done in CIS countries whereas Azerbaijan has the smallest one.

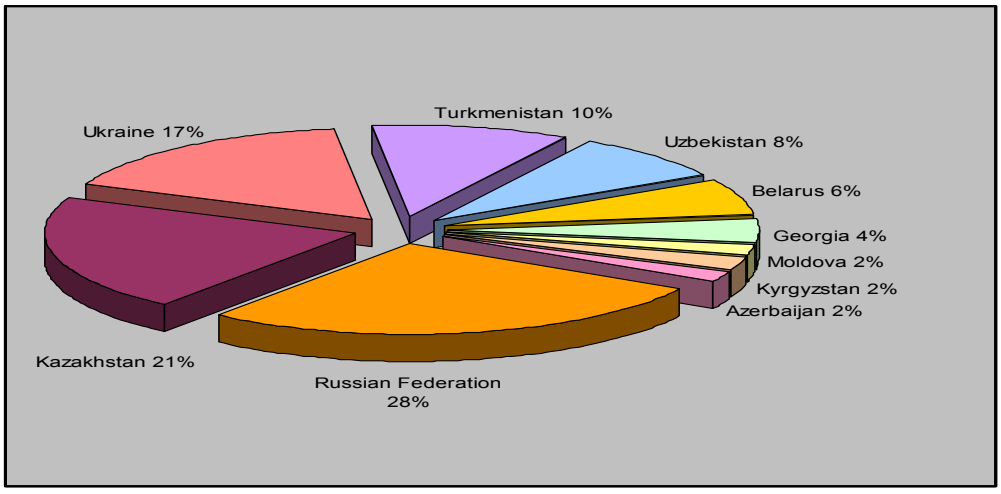

Figure 4.3 CIS countries in which respondent architectural firms have executed projects

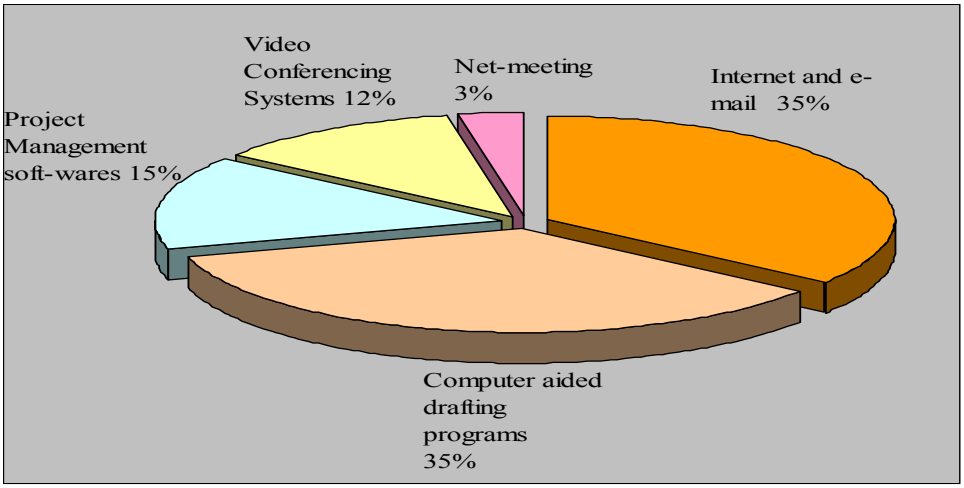

Figure 4.4 Types of information technology tools used during the design process

From Figure 4.4 it can be seen that Internet, e-mail and computer aided drafting (CAD) programs are the basic information technology tools that respondent architects use for the information flow during the duration of the project. Net-meetings are the least popular tool of information technology.

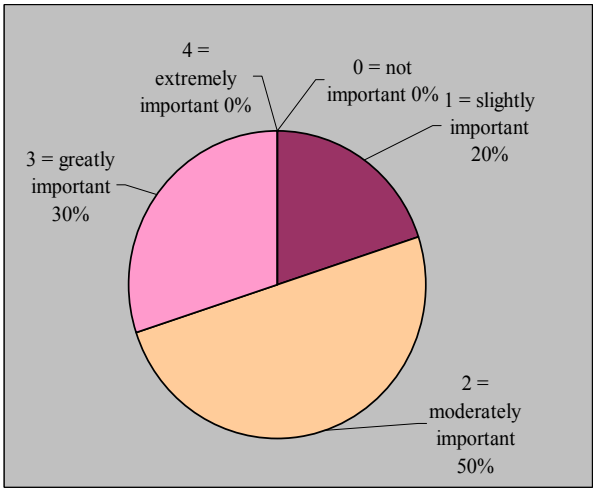

Figure 4.5 Total ratings for culture based problems which affect IDP

When analyzing the types of problems faced by the architectural firms it can be seen in Figure 4.5 that, 50% of the respondent see culture based problems

"moderately important", 30% "greatly important" and %20 of them see it "slightly important". None of the responded considers this problem "extremely important" or "slightly important". Nationality of the client might be influential for this rating. Among the respondents most of their clients are Turkish construction companies.

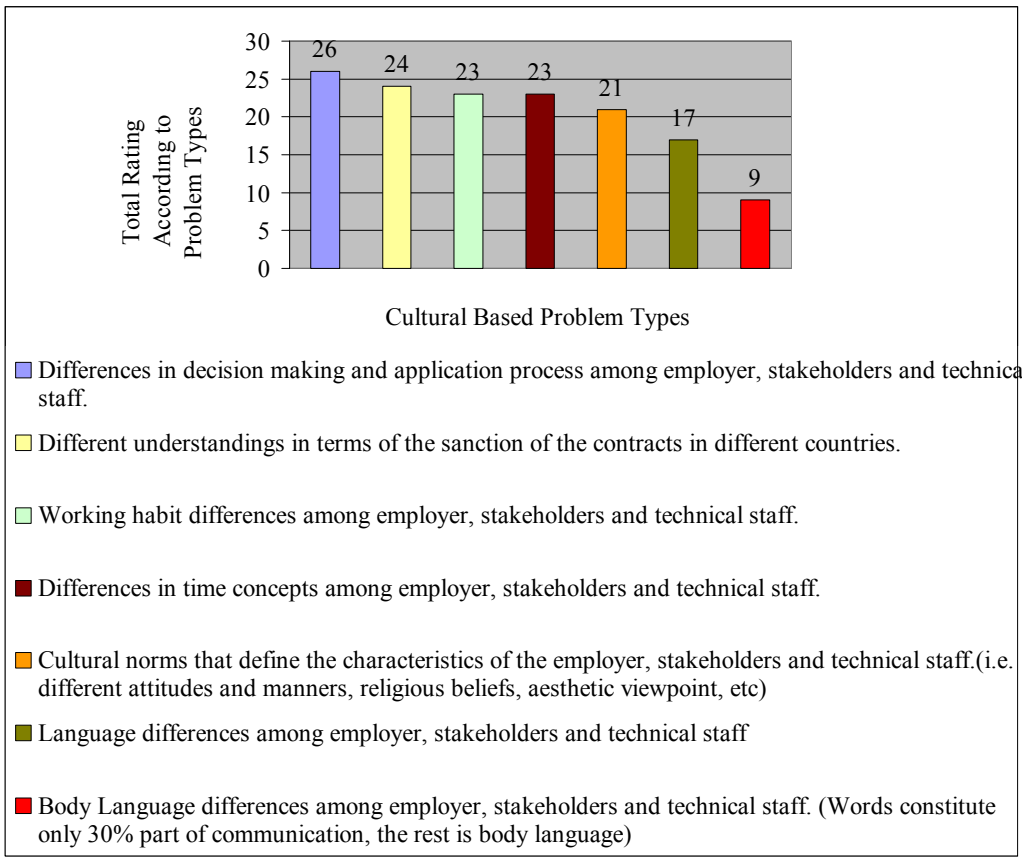

Figure 4.6 Total ratings for types of cultural factors

In Figure 4.6, it is shown that differences in decision making and application processes are the most important ones amongst the cultural based problems faced during the course of international projects. Difference in body language is marked as the least important problem by the respondents.

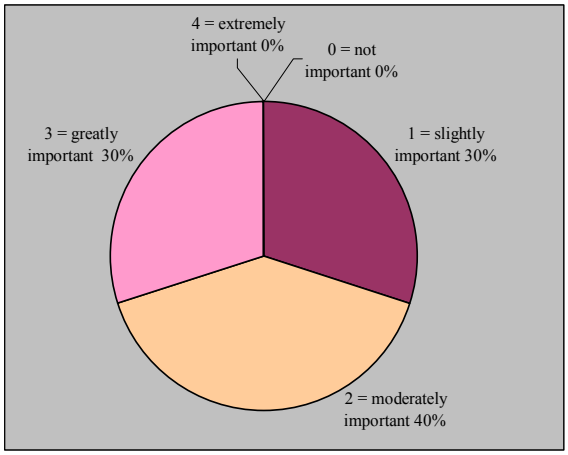

Figure 4.7 Total ratings for standards and regulations based problems affect IDP

According to Figure 4.7 it can be seen that, 40% of the respondent see Standards based problems moderately important whereas 30% of them see as "greatly important" and 30% of them see as "slightly important". Among the respondents who see this problematic factor "slightly important" most of them have local partners or workers who have experience in that region.

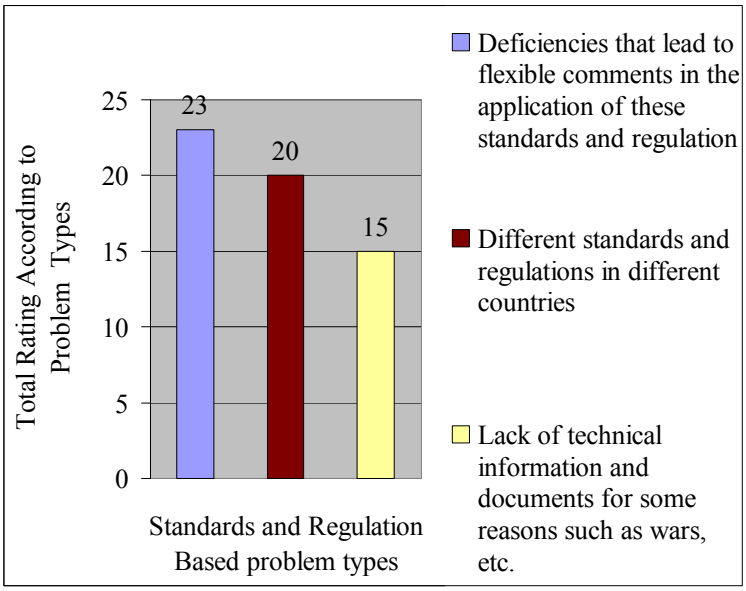

Figure 4.8 Total ratings for types of standards and regulations based problems

According to Figure 4.8 flexible clauses are the most important factor related to standards and regulations of the target country, since they cause misunderstandings and create problems. The least important problem is lack of technical information and documentation.

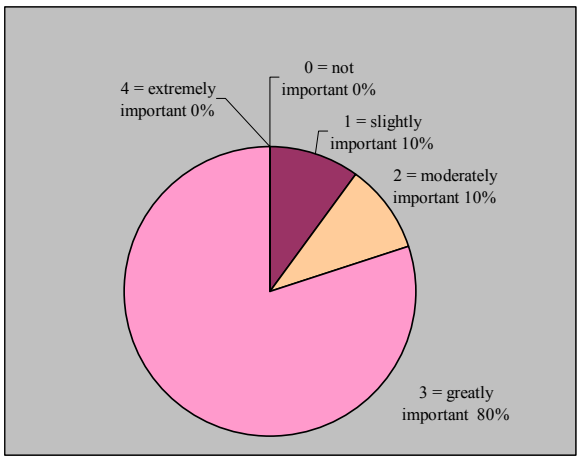

Figure 4.9 Total ratings for client and contract based problems affect IDP

Figure 4.9 shows that, 80% of the respondents see client and contract based problems as greatly important while 10% as moderately and again 10% consider them as slightly important. None of the responded considers this problem “extremely important” or “slightly important”. Figure 4.10 shows in detail how these problems are distributed through the types of problems.

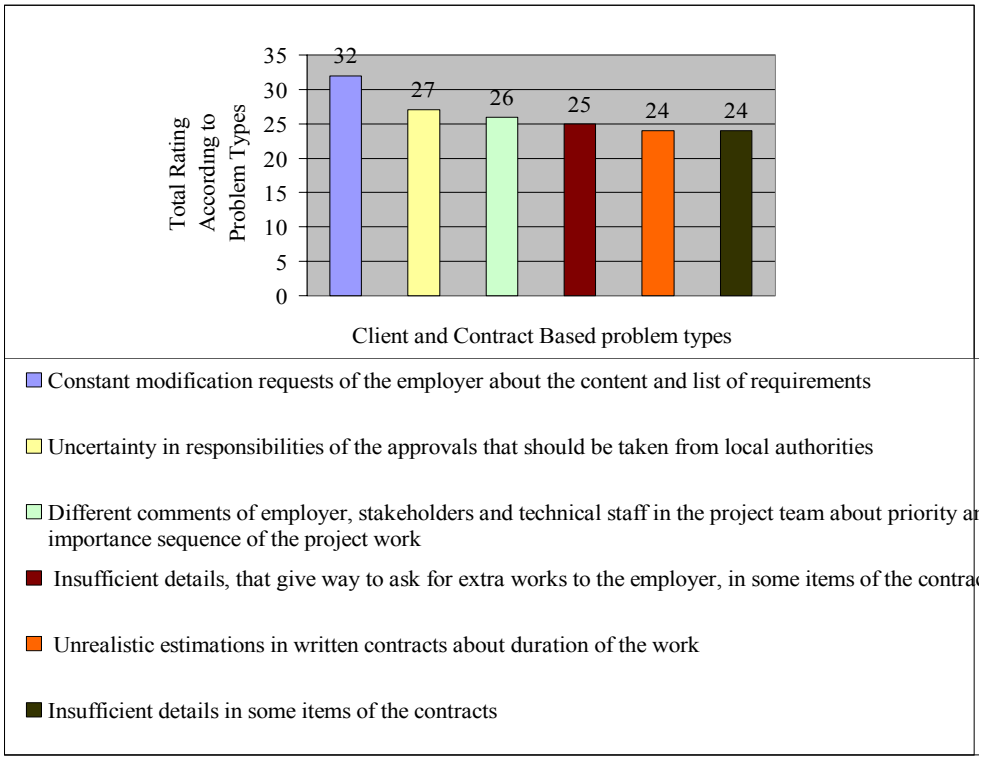

Figure 4.10 Total ratings for problematic factors due to client and contract based problems

Figure 4.10 shows that with regard to client and contract factors; continual modifications requested in the list of requirements is the most common problem, whereas lack of detailed information about the terms of contract is the least important one.

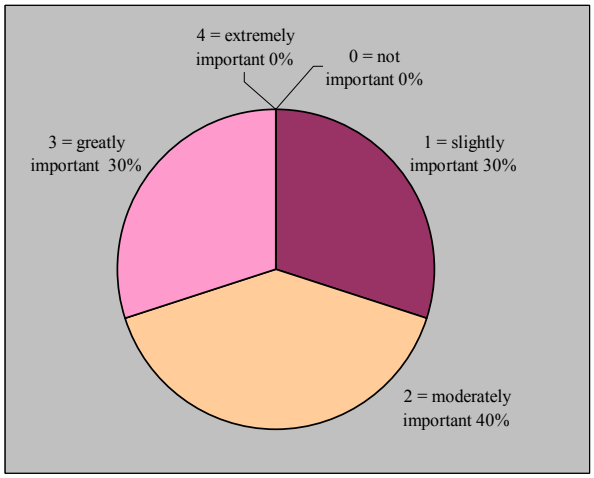

Figure 4.11 Total ratings for local authority problems which affect IDP

Figure 4.11 indicates that 70% of the respondents see local authority based problems important during the process whereas 30% of them see it slightly important. The respondents who do not see this type of problems as important are especially those who get the project or work from Turkish construction companies and do not have to get in touch with the local authorities of the target country.

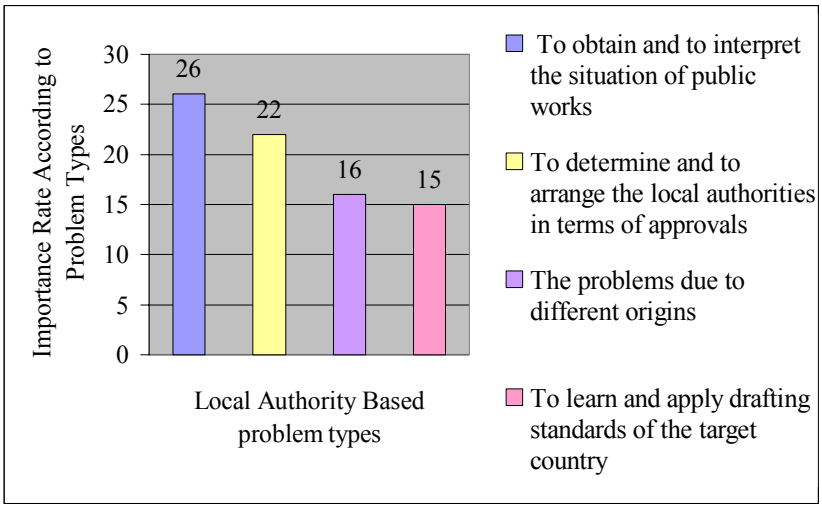

Figure 4.12 Total ratings for problematic factors due to local authorities

In Figure 4.12, it is shown that to obtain and interpret the symbols used in site plans are the most important problems with regards to local authority based problem types. Drafting standards is the least important one.

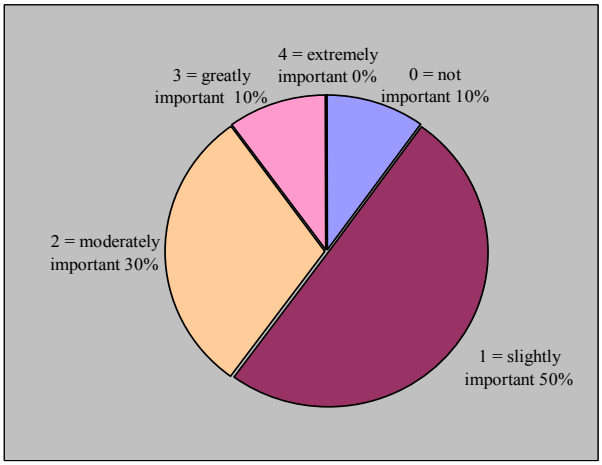

Figure 4.13 Total ratings for technology based problems affect IDP

Figure 4.13 indicates that only 10% of the respondents considered technology based problems as “greatly important”, while 10% of them considered “not important”. None of the responded considers this problem “extremely important” or “slightly important”. The distribution of types of technology based problems can be classified as below (Figure 4.14).

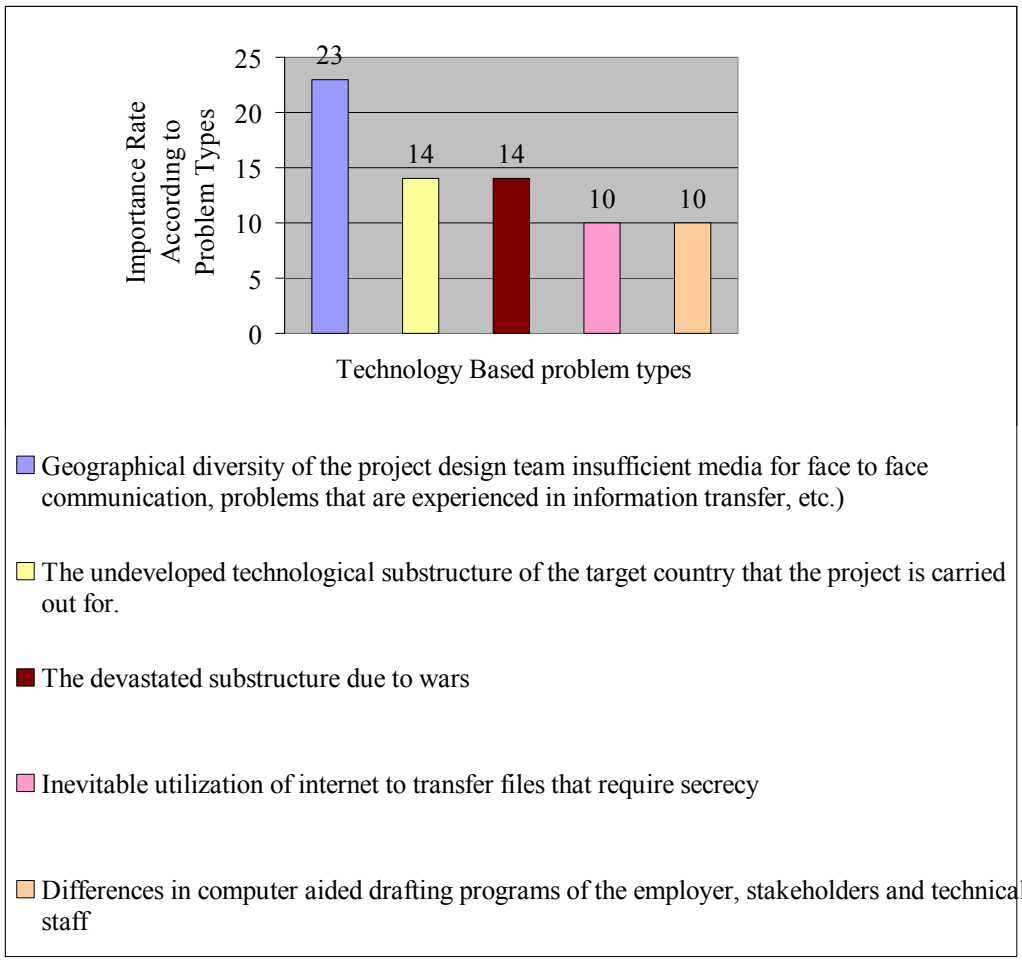

Figure 4.14 Total ratings for problematic factors due to technology

According to Figure 4.14, geographical diversity of the project design team is of utmost importance among the technology based problems, whereas differences in CAD soft wares have the least relevance.

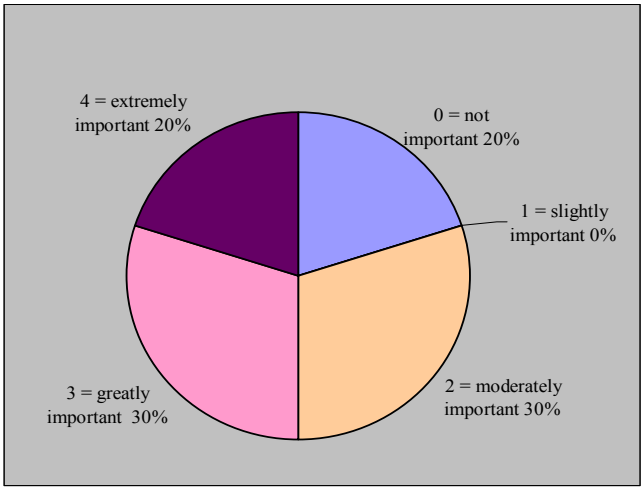

Figure 4.15 Total ratings for economical instabilities of target country which affect IDP

The respondents were also asked whether economical instability of the target country's important or not. Figure 4.15 shows the results of their responds and it can be seen that most of the respondents see this factor as important.

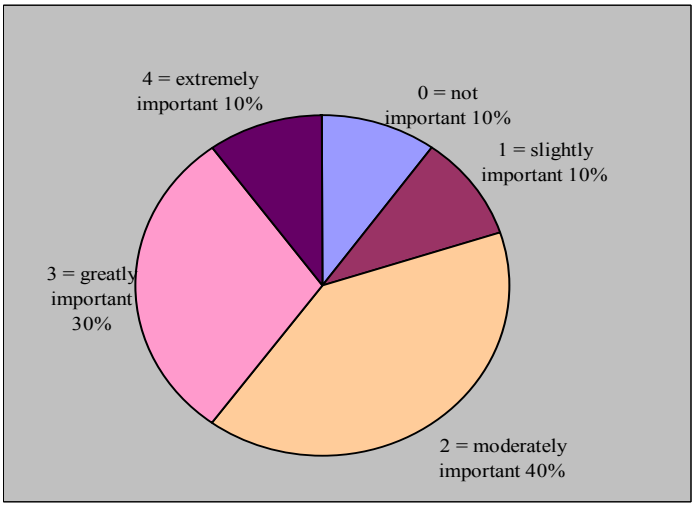

Figure 4.16 Total ratings for travels and customs based problems affect IDP

Figure 4.16 shows that most of the respondents see travels and custom based problems important during the process whereas 10% of them see as "not important". They claim that during these travels they can not control the time losses especially at the airports and customs.

In order to examine the factors, which affect the amount of problems some

charts have been drawn to check the following three hypotheses, which are:

- H_{01}: as the number of project type increases, number of problems decreases
- H_{02}: as the number of countries increases, number of problems increases
- H_{03}: as the experience years increases, number of problems increases

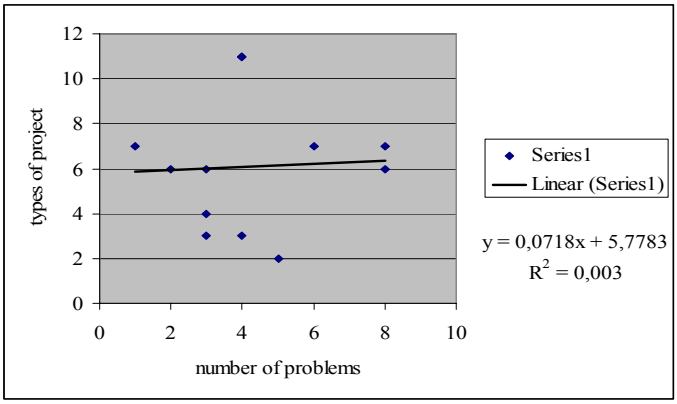

Figure 4.17 Types of project-number of problems

When H_{01} was formulated, it was thought that there could be a direct relation between the number of project types and the number of problem, which the applicants faced. In other words, when the types of projects are increased, the number of problems will also increase. Nevertheless, the chart shows that there is no significant relationship between the number of project types and the number of problems that the respondents faced. Since R^2 is extremely small (R^2=0.003) the hypothesis is rejected.

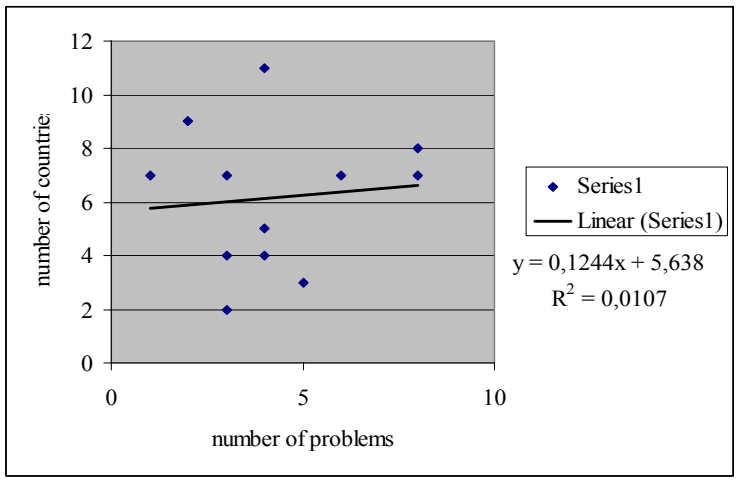

Figure 4.18 Number of countries-number of problems

Hypothesis H_{02} was formulated to check the relationship between the number of countries and the number of problems that the applicants faced. But again the analyses shows us that, there is no a significant relationship between the number of countries and the number of problem, which the applicants faced (R^2=0.011). This hypothesis is also rejected.

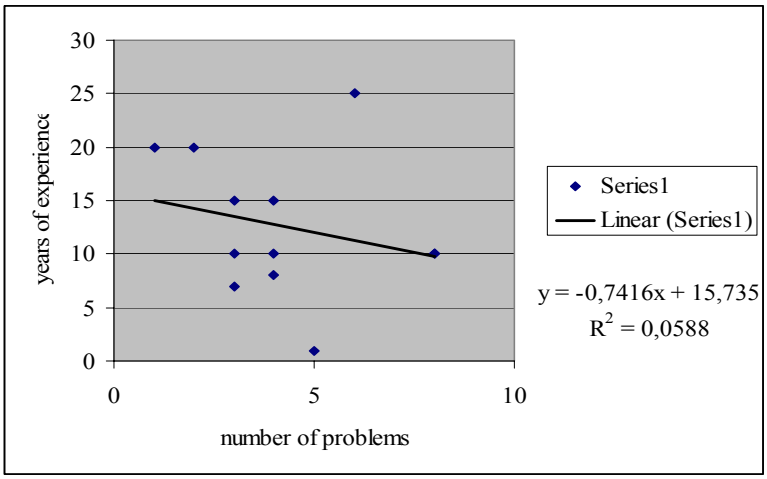

Figure 4.19 Numbers of problems-Years of experience

Hypothesis H_{03} was formulated in order to find the factors affecting the number of problems, the next step was to determine whether there exists is a correlation

between years of experience and the number of problems. The analysis does not ascertain a significant relationship between the years of experience and the number of problems. Therefore, this hypothesis is also rejected.

Other hypotheses analyses are presented in Appendix D, which investigated whether there exists any relationship between the problems which were faced during the management of design process abroad and the years of experience of architects/types of projects executed abroad/number of the countries. Although no correlation was found between the amount of problems faced and those variables, this situation does not change the fact that architects who are executing projects abroad complain about these problems. It those follows that this questionnaire should be applied to more professionals and more significant results might be obtained from the analysis. It should be noted that although the questionnaires were sent to many professionals only a few responded.

4.2 Suggestions

According to questionnaires some suggestions were given by the architects about how to overcome the problems faced by them in foreign countries. These solutions have been listed below under separate headings:

1. Solutions to culture based problems: One of the architects that returned the questionnaire claims that it would be possible to overcome the problems due to cultural differences provided that the expectations and moral values of the target country's culture are well-perceived and the cultural differences are taken into consideration while executing and/or planning the projects for abroad. Another architect claims that to specify and determine a certain way of behavior and attitude according to the problems related to cultural differences in the time of concept is very important to overcome these obstacles.

2. Solutions to the standards and regulations based problems The first suggestion to cope with the problems due to the standards and

regulations of the country in question is to associate with local partners. Local partners could also serve as consultants guiding through the standards and regulations that should be followed. If building standards and regulations are insufficient in the target country, it might be possible to utilize international standards. The latter suggestion is to try to solve the problem in question by translating the necessary standards of the target country with contributions of the Association of Turkish Consulting Engineers and Architects, Undersecretariat of the Prime Ministry for Foreign Trade, and Chamber of Architects.

3. Solutions to client and contract based problems: The first suggestion to solve these kinds of problems is to decrease the interruptions from the client in the design process as much as possible. Another comment states that it is very important and comforting to associate with an experienced client. The last of the comments points out to the necessity to establishing some platforms to defend the rights of the architects in case of mistreatment by the client.

4. Solutions to local authority based problems: All of the four comments point out to the importance of local partners being the only solution to overcome authority based problems. One of them emphasizes the importance of relations between domestic and foreign governments and authorities.

5. Solutions to technology based problems: The first suggestion is to do extensive research into the technologies and software, which are available or needed in the target country. Another one suggests that it is important to determine the appropriate information technologies for the project process.

6. Solutions to economy-based problems: The first suggestion about this topic is to take the conditions in countries with floating economies into consideration due to the possibility of increasing risks in estimations, calculations and determinations of the costs of the projects. The other

suggestion to decrease the risks is to develop international political and economical relations amongst the countries.

7. Solutions to travels and custom based problems: The former of the two suggestions is to prepare the proposals in such a way that frequent travels are also considered, while the latter offers to include the required time for these travels in the schedules as well.

8. Suggested general process: The first comment about this process is mostly related to the necessity of a strict control of work and good accord between the work and the working schedule. It is also suggested that the Chamber of Architects and representatives of the Undersecretariat of Foreign Affairs should support the architects with financial and legal consultants for necessary legal arrangements and standardizations. Importance of time and duration should be emphasized in every work item and restrictive precautions should be taken to prevent any loss and/or exploitation. Another suggestion is to take the necessary safety measures in order to pull the rivalry in business world to a rational level in such a way that it would not affect professional ethics and service quality negatively. Another one claims that it would be helpful to work or associate with a consultant from the country in question in order to overcome the obstacles. It was also claimed that it is essential to decrease the language problem to minimum.

The necessity that the architects should be supported by the government for international projects is focused on; fortunately, the proposal, which was prepared by the Undersecretariat of Foreign Affairs related to this subject has already been published in the official gazette on 9th June, 2004. According to this rule, certain amount of the expenses of the offices that are to be founded by the consultants in the specified countries, which the undersecretaries define as target markets, would be funded. The other specified point is that the client should specify the needs and requirements

at the very beginning so that the decrease in the revisions would be among the factors to facilitate the process.

CHAPTER 5

CONCLUSION

In this study, the problems encountered in the execution of international design projects are investigated by means a survey based on two questionnaires. The departure point of this thesis is mostly based on the observations and investigations carried out in architectural offices which are based in Ankara and have experience about the IDP. Referring to these, it could be said that the problems and difficulties that are experienced while executing projects within the home country and abroad are very different. Many firms from different sectors have established alliances with the others from different countries and formed consortiums to execute projects abroad. Although it may seem to be very advantageous to utilize new markets in many aspects, the problems in question decrease the yield and harden the process. This thesis aimed to determine the problems encountered during the execution of projects abroad by mostly architectural aspects. In order to encounter the very common problems interviews were conducted with architects who are executing projects for foreign countries. The first questionnaire was prepared in accordance with the findings of these interviews. Thereafter, the second questionnaire was prepared in accordance with the findings of the first one.

Based on the answers of the questionnaires and the results of the statistical analyses performed, the following points could be emphasized.

1. Although the researches and studies that were investigated as part of the literature survey lay on, emphasize on the problems related to cultural differences, the questionnaires in this study show that culture based problems are not seen as very important. The reason for this may be that most of the

respondents obtain work from Turkish construction companies and do not meet their foreign partners. Because of this reason they might not feel that cultural difference affects their project execution. 60% of the firms obtained the contracts from purely from Turkish firms while the rest obtained them from both Turkish and Foreign firms.

2. The most severe and frequent problems are found to be the ones with the client. Excessive interruptions the project and ongoing modifications are seen to be disturbing the process.

3. Opposed to the very common belief, the statistical results show that it is not possible to form a direct relationship between the years of experience and the number of problem in international business. In other words, it could be said that experience does not guarantee to reduce the problems.

4. There is no proof to claim that the diversity of regions increases the amount and level of problems.

5. Most of the respondents insist on the importance of having local partners during international design projects. Since these partners can help to solve these problems.

According to the results of the study and literature survey there might be some recommendations for further studies:

1. More comprehensive survey is required to determine the picture.
2. Client and contract based problems should be studied in detail.

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APPENDIX A

DISTRIBUTION GRAPHS OF TURKISH CONTRACTORS RESPECT TO FOREIGN COUNTIES

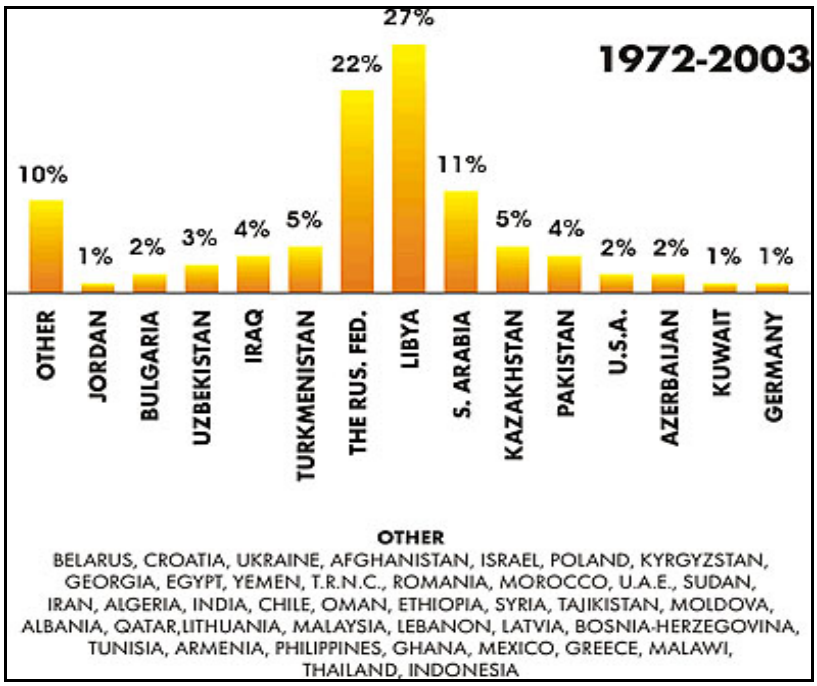


Figure A.1 The distribution of international works of TCA (Turkish Contractors Association) member firms between the years 1972-2003[1].

[1] Turkish Contractors Assotiation web page, http://www.tmb.org.tr, 2004

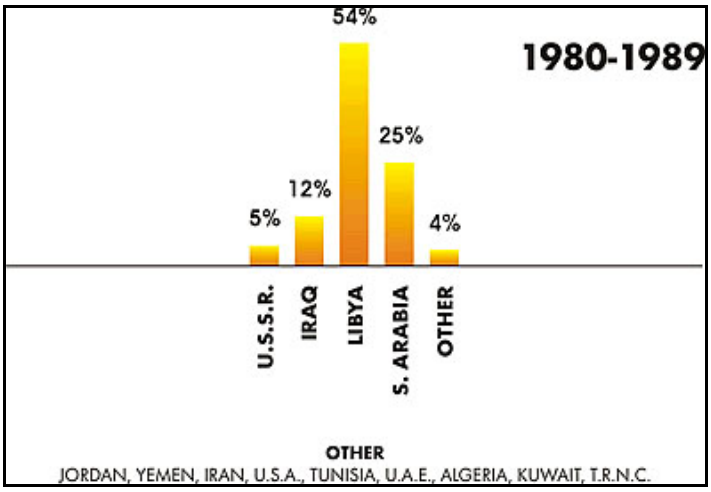


Figure A.2 The distribution of international works of TCA (Turkish Contractors Association) member firms between the years 1980-1989[2].

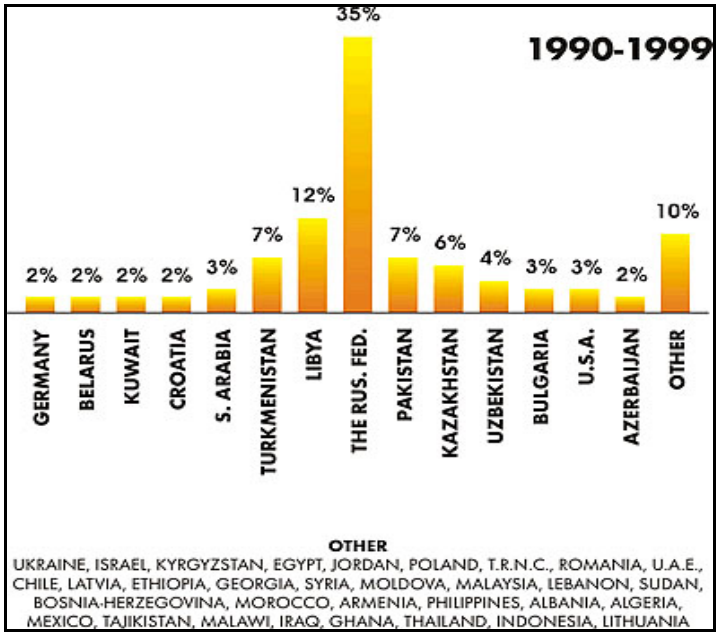


Figure A.3 The distribution of international works of TCA (Turkish Contractors Association) member firms between the years 1990-1999[3].

[2] ibid
[3] ibid

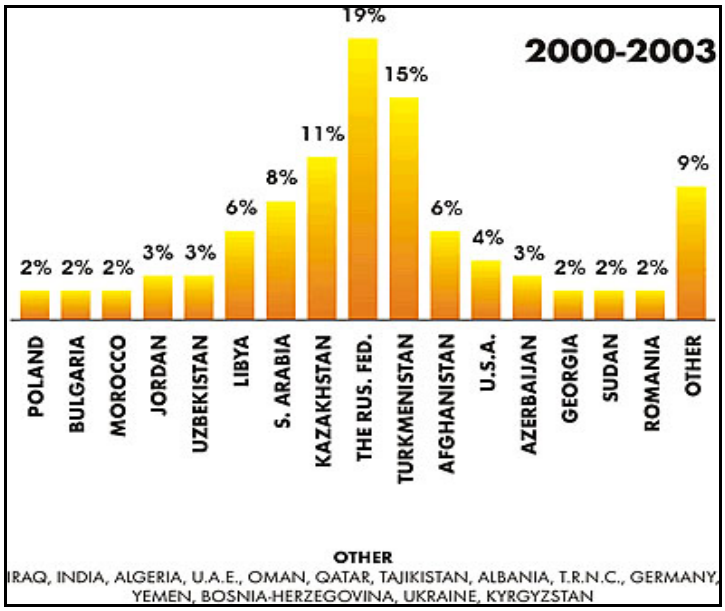


Figure A.4 The distribution of international works of TCA (Turkish Contractors Association) member firms between the years 2000-2003[4].

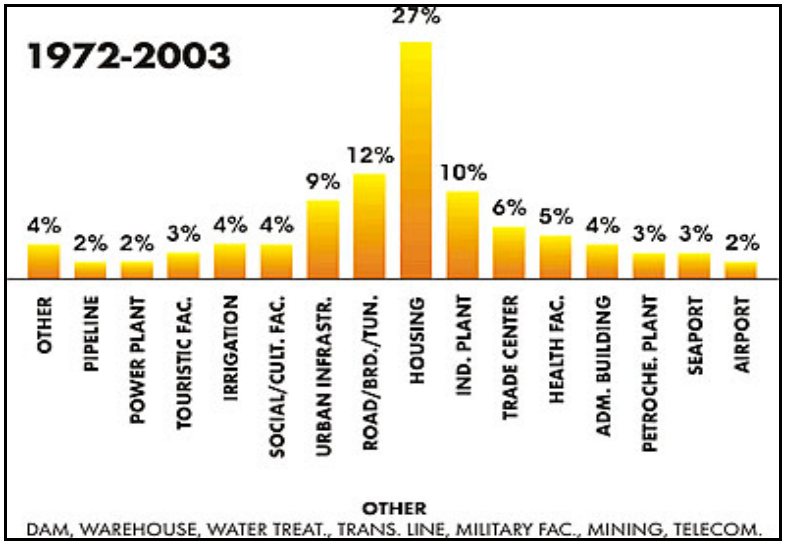


Figure A.5 The distribution of international works of TCA (Turkish Contractors Association) member firms between the years 1972-2003 with respect to types[5].

[4] ibid
[5] ibid

APPENDIX B

QUESTIONNAIRES

B1. FIRST QUESTIONNAIRE

MIDDLE EAST TECHNICAL UNIVERSITY
FACULTY OF ARCHITECTURE
DEPARTMENT OF ARCHITECTURE

FIRST QUESTIONNAIRE

Some questions related to the experiences in the process of international projects are listed below. It is very important for the results of the research that your answers reflect the truth as much as possible. The first five questions are about the information of the firm and their answers will completely be kept secret. Again, your name will only be used to return to you in the process and will be kept secret.

Please fill in the form.

Name-Surname:

Your Profession

Your position in the company:

1_ Company name

2_ Number of staff: 1-5

3_ Number of permanent staff: 1-5

4_ Do you make organizational differentiation among your personnel? (Documentation, project drafting- management...) ◉ Yes ○ No

5_ Number of your Design Groups. (If you work in groups for the coordination of your projects) 1

6_ Your project services abroad: ☐ Existing ☐ Nonexisting

7_ How long have you been executing projects abroad? 1

8_ Types of projects for abroad?

☐ Shopping Centers

☐ Cinema and Entertainment Centers

☐ Residence Buildings

☐ Transportation Buildings

☐ Health Buildings

☐ Communication Buildings

☐ Trade Centers and Complexes

☐ Education Buildings

☐ Sports Centers

☐ Tourism Buildings

☐ Office and Administrative Buildings

☐ Others

9_ The countries that you execute projects for;

10_ Can you state the problems in their importance sequence item by item that you encounter as a project manager and an architect when you execute abroad?

11_ What kinds of problems do you have with the foreigner partners? (They can be the owner of the business, engineers or contractor)

12_ Below there are managerial problems that are generally encountered in the projects execute in abroad. Can you list in order the ones that affect architectural projects executed in abroad? (You should give 5 that has the most importance, and 1 that has the least)

1 The economical conditions in the target country

Explanation:

1 The cultural structure of the target country

Explanation:

1 The technological substructure in the target country

Explanation:

1 Standards to be obeyed in the target country

Explanation:

1 The foreign language problem

Explanation:

13_ What are your suggestions for the solution of the problems in item 10, 11 and 12?

14_ Which information technologies do you use?

- ☐ Internet and e-mail
- ☐ Computer aided drafting programs
- ☐ Net-meeting
- ☐ Project Management soft-wares (primavera, Microsoft project)
- ☐ Video Conferencing Systems
- ☐ Others

15_ Do you have a design strategy for your foreign projects

Do you think this questionnaire could be effective to explore the problems encountered in international project managements? ☑ Yes ☐ No

What are your comments and suggestions about this questionnaire?

B2. FIRST QUESTIONNAIRE (IN TURKISH)

ORTADOĞU TEKNİK ÜNİVERSİTESİ
MİMARLIK FAKÜLTESİ
MİMARLIK BÖLÜMÜ

BİRİNCİ ANKET

Yurtdışına proje yaparken yaşanan sürece ait aşağıda bazı sorular yer almaktadır. Bu sorulara elinizden geldiğince doğruyu yansıtan cevaplar vermeniz araştırmanın sonuçları açısından çok önemlidir. İlk 5 soru firma bilgileri olup bunlar tamamen gizli tutulacaktır. Yine isminiz sadece bu süreçte size geri dönüşü sağlamak amacı ile kullanılacaktır ve gizli tutulacaktır.

Lutfen aşağıdaki formu doldurunuz.

Adı-Soyadı:

Mesleğiniz:

Şirketteki göreviniz:

1_ Şirket ismi

2_ Personel Sayısı: 1-5

3_ Çekirdek Personel Sayısı: 1-5

4_ Çalışanlarınız arasında organizasyonel ayrımlara gidiyormusunuz? (Dokumentasyon, proje çizimi - yönetimi, ...) ◉ Evet ○ Hayır

5_ Tasarım Gurubu Sayınız. (Projelerinizin Koordinasyonu icin gruplar oluşturuyor iseniz) 1

6_ Yurt dışı proje hizmetleriniz: ○ Var ○ Yok

7_ Kaç yıldır yurt dışına proje yapıyorsunuz? 1

8_ Yurt dışına yapılan projelerin türü

- ☐ Alış - Veriş Merkezi ve Kompleksleri
- ☐ Konut
- ☐ Sağlık Yapıları
- ☐ Ticaret Merkezleri ve Kompleksleri
- ☐ Spor Kompleksleri
- ☐ Ofis ve İdari Yapılar
- ☐ Diğerleri
- ☐ Sinema ve Eğlence Kompleksleri
- ☐ Ulaşım Yapıları
- ☐ İletişim ve Haberleşme Yapıları
- ☐ Eğitim Yapıları
- ☐ Turizm Yapıları

9_ Proje yaptığınız ülkeler;

10_ Yurt dışına iş yaparken proje yöneticisi ve mimar olarak yaşadığınız problemleri önem sırasına göre maddelermisiniz?

11_ Yabancı ortaklar ile (işin sahibi, mühendisler yada proje ana yüklenicisi olabilir) ne gibi problemler yaşıyorsunuz?

12_ Literatürde Genel olarak yurtdışına yapılan projelerde karşılaşılan yönetimsel problemler aşağıdaki gibi maddelenmiştir. Bu problemlerden yurtdışına yapılan mimari projelere etkisi olanları önem sırasına göre sıralarmısınız. (en önemli olana 5 puan, en az önemli olana 1 puan vermeniz gerekmektedir.)

1 Hedef ülkedeki ekonomik durum

Açıklama:

1 Hedef ülkedeki kültürel yapı

Açıklama:

1 Hedef ülkedeki teknolojik altyapı

Açıklama:

1 Hedef ülkedeki uyulması gereken yasal düzenleme ve standardlar

Açıklama:

1 Yabancı dil problemi

Açıklama:

13_ 10. ,11. ve 12. maddelerdeki problemlere önerdiğiniz çözümler nelerdir?

14_ Bilgi teknolojilerinin hangilerini kullanıyorsunuz?

- ☐ Internet ve e-mail
- ☐ Bilgisayar destekli çizim programları
- ☐ Net-meeting
- ☐ Yönetim ve iş programı yazılımları (primavera, microsoft project)
- ☐ Video konferans sistemleri
- ☐ Diğerleri

15_ Yurt dışına yaptığınız projelerde bir tasarım stratejiniz var mı?

Sizce bu anket uluslararası proje yönetimlerinde karşılaşılan problemleri irdelemekte yeterli olabilirmi? ◉ Evet ○ Hayır

Anket ile ilgili olarak iletmek istediğiniz düşünce ve önerileriniz nelerdir?

B3. SECOND QUESTIONNAIRE

MIDDLE EAST TECHNICAL UNIVERSITY
FACULTY OF ARCHITECTURE
DEPARTMENT OF ARCHITECTURE

SECOND QUESTIONNAIRE

The second phase of the questionnaire that has been prepared for the master thesis in Middle East Technical University-Department of Architecture is given below. The problems that the architecture firms executing projects for abroad generally experience until the construction phase (during design process) constitute the frame of this study. The growing inclination to open to new markets since the early 1980s, has affected the construction sector as well as the other business sectors. Turkish construction business services for abroad have had projects over 2600 costing 58 billion USA dollars in 62 countries up to now and have become among the most important actors in the sector. Turkish architects and engineers have also been affected from this situation. Design service, engineering coordination, list of supplies, technical contracts, etc. could be listed as the basic parameters covered in the project service. It has been observed in the first phase of the questionnaire that the problems in this process vary according to whether the employer is from a different country. In the questionnaire below, the first part of the 7th question (culture) should be answered considering the problems with foreign employers in particular. Again, in for grading the 7th question, please do not fill in if you have never encountered the given situation

Thank you for your concern,

Umut Fığlalı

1_ Name-Surname:

2_ Company name:

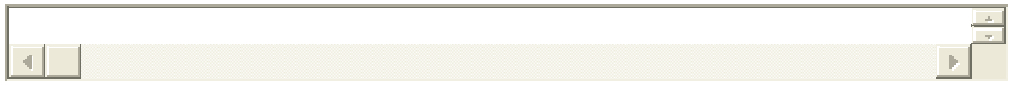
3_ How long have you been giving service for abroad projects?

4_ Types of projects for abroad?

- ☐ Shopping Centers
- ☐ Cinema and Entertainment Centers
- ☐ Residence Buildings
- ☐ Transportation Buildings
- ☐ Health Buildings
- ☐ Communication Buildings

- ☐ Trade Centers and Complexes
- ☐ Education Buildings
- ☐ Sports Centers
- ☐ Tourism Buildings
- ☐ Office and Administrative Buildings
- ☐ Others

5_ The countries that you execute projects for;



6_ Which of the following project services do you give while executing abroad?

- ☐ Feasibility works,
- ☐ Design services,
- ☐ Preparing renovation projects,
- ☐ Preparing design analysis, (topography works evaluation of the soil, economical analysis, etc.)
- ☐ Preparation of bill of quantities
- ☐ Material selection and preparation of the material list,
- ☐ Preparing bid package
- ☐ Preparation of technical specifications,
- ☐ Engeeniring coordination
- ☐ Preparation of special condition documents

7_ According to first questionnaire results, following challenging factors, which contribute to international design project management, have been found out. Please rate their importance degree and please give your suggestions for the solutions of the problems.

Culture based problems

7.1. Language differences among employer, stakeholders and technical staff — 0 (not at all)

7.2. Body Language differences among employer, stakeholders and technical staff. (Words constitute only 30% part of communication, the rest is body language) — 0 (not at all)

7.3. Working habit differences among employer, stakeholders and technical staff. — 0 (not at all)

7.4. Cultural norms that define the characteristics of the employer, stakeholders and technical staff.(i.e. different attitudes and manners, religious beliefs, aesthetic viewpoint, etc) — 0 (not at all)

	7.5 Differences in time concepts among employer, stakeholders and technical staff.	0 (not at all)
	7.6 Different understandings in terms of the sanction of the contracts in different countries.	0 (not at all)
	7.7 Differences in decision making and application process among employer, stakeholders and technical staff.	0 (not at all)
	Suggestions for the solution	
Standards and regulations based	7.8 Different standards and regulations in different countries	0 (not at all)
	7.9 Deficiencies that lead to flexible comments in the application of these standards and regulation	0 (not at all)
	7.10 Lack of technical information and documents for some reasons such as wars, etc.	0 (not at all)
	Suggestions for the solution	
Employer and/or agreement based problems	7.11 Different comments of employer, stakeholders and technical staff in the project team about priority and importance sequence of the project work	0 (not at all)
	7.12 Unrealistic estimations in written contracts about duration of the work	0 (not at all)
	7.13 Constant modification requests of the employer about the content and list of requirements	0 (not at all)
	7.14 Uncertainty in responsibilities of the approvals that should be taken from local authorities	0 (not at all)
	7.15 Insufficient details, that give way to ask for extra works to the employer, in some items of the contracts	0 (not at all)
	7.16 Insistence of the employer about utilizing local construction materials and interference to the architect in design process	0 (not at all)

Local authority based problems

Suggestions for the solution

7.17 To learn and apply drafting standards of the target country — 0 (not at all)

7.18 The problems due to different origins — 0 (not at all)

7.19 To determine and to arrange the local authorities in terms of approvals — 0 (not at all)

7.20 To obtain and to interpret the situation of public works — 0 (not at all)

Suggestions for the solution

Technology based problems

7.21 The undeveloped technological substructure of the target country that the project is carried out for. — 0 (not at all)

7.22 The devastated substructure due to wars — 0 (not at all)

7.23 Inevitable utilization of internet to transfer files that require secrecy — 0 (not at all)

7.24 Differences in computer aided drafting programs of the employer, stakeholders and technical staff — 0 (not at all)

7.25 geographical diversity of the project design team insufficient media for face to face communication, problems that are experienced in information transfer, etc.) — 0 (not at all)

Suggestions for the solution

Economy based problems

7.26 Unstable economical situation in the target country — 0 (not at all)

Suggestions for the solution

Travels and custom based problems

7.27 The necessity for frequent travels within this process — 0 (not at all)

7.28 Problems and difficulties experienced in customs in airports (i.e. duration of visa, taxes, transport of models, etc.) — 0 (not at all)

Suggestions for the solution

General comments

Suggestions for the solution

8_ A Please select the importance degrees of the headings above

8.1 Culture based problems — 0 (not at all)

8.2 Standards and regulations based problems — 0 (not at all)

8.3 Employer and/or agreement based problems — 0 (not at all)

8.4 Local authority based problems — 0 (not at all)

8.5 Technology based problems — 0 (not at all)

8.6 Economy based problems — 0 (not at all)

8.7 Travels and custom based problems — 0 (not at all)

9_ Especially in which country do you face problems about standards and regulations? Through preparation of projects, particularly with which building regulations do you face problems?

B4. SECOND QUESTIONNAIRE (IN TURKISH)

ORTADOĞU TEKNİK ÜNİVERSİTESİ
MİMARLIK FAKÜLTESİ
MİMARLIK BÖLÜMÜ

İKİNCİ ANKET

Orta Doğu Teknik Universitesi - Mimarlık bölümü' nde çalışmakta olduğum master tezim kapsamında hazırlamış olduğum anket çalışmasının 2. safhası aşağıda yer almaktadır. Yurt dışına proje hizmeti veren mimarlık bürolarının inşaat aşamasına kadar (tasarım sürecinde) yaşadıkları problemler tezin kapsamını oluşturmaktadır. 1980li yılların başlarından itibaren daha da yoğun hale gelen yeni pazarlara açılma isteği her iş sektörünü olduğu gibi yapı sektörünü de etkilemiştir. Türk yurt dışı müteahhitlik hizmetleri bugüne kadar 62 ülkede yaklaşık 58 milyar ABD doları tutarında 2600'ün üzerinde proje üstlenmiş, sektörün en önemli aktörlerinden biri haline gelmiştir. Bu durumdan türk mimar ve mühendisleri de etkilenmektedirler.

Yapılan proje hizmetinin içeriğininde tasarım hizmeti, mühendislik koordinasyonu, malzeme listeleri, teknik şartnameler, vs.. gelmektedir. Bu süreçte yaşanan problemlerin işverenin farklı ülkeden olup olmamasına göre çeşitlilik gösterdiği ilk anket sonuçlarında gözlemlenmiştir. Aşağıdaki ankette, 7. sorunun ilk kısmını (kültür) özellikle yabancı işverenlerle karşılaştığınız problemleri göz önünde bulundurarak cevaplamanız gerekmektedir. Yine 7. kısımda yer alan puanlamada, eğer verilen durum ile daha önce hiç karşılaşmadıysanız lütfen boş bırakın.

Zaman ayırdığınız için teşekkür ederim.

Umut Fığlalı

1_ Adı-Soyadı:

2_ Şirket ismi

3_ Kaç yıldır yurt dışına proje yapıyorsunuz?

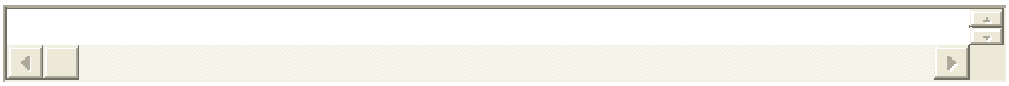
4_ Yurt dışına yapılan projelerin türü

☐ Alış - Veriş Merkezi ve Kompleksleri

☐ Sinema ve Eğlence Kompleksleri

- ☐ Konut
- ☐ Sağlık Yapıları
- ☐ Ticaret Merkezleri ve Kompleksleri
- ☐ Spor Kompleksleri
- ☐ Ofis ve İdari Yapılar
- ☐ Ulaşım Yapıları
- ☐ İletişim ve Haberleşme Yapıları
- ☐ Eğitim Yapıları
- ☐ Turizm Yapıları
- ☐ Diğerleri

5_ Proje yaptığınız ülkeler;



6_ Yurt dışına yaptığınız projelerde genel olarak aşağıdaki hizmetlerden hangilerini veriyorsunuz?

- ☐ Fizibilite çalışmaları yapmak,
- ☐ Renovasyon projeleri üretmek,
- ☐ Metraj ve keşifleri hazırlamak,
- ☐ İhale şartnameleri hazırlamak
- ☐ Mühendislik koordinasyonunu sağlamak
- ☐ Tasarım hizmeti vermek,
- ☐ Tasarım analizleri yapmak (topoğrafya çalışmaları, zemin raporu, ekonomik analizler, tasdik prosedürleri vs.)
- ☐ Malzeme seçimini yapmak ve listelerini hazırlamak,
- ☐ Teknik şartnameleri hazırlamak,
- ☐ Özel koşullar belgesini hazırlamak (her özel işin gerçekleştirilmesi sırasında muteahhit tarafından uyulması gereken genel konularının tarif edildiği dökümandır.)

7_ Yapılan ilk anketin sonuçları doğrultusunda düzenlenmiş olan aşağıdaki çizelgede, sorun olarak belirtilen durumların önem derecesini işaretleyiniz. Konularla ilgili çözüm önerilerinizi belirtiniz.

Kültür	7.1.Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların konuştukları dilin farklı olması	0 (Hiç)
	7.2.Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların beden	

dillerinin farklı olması (karşılıklı konuşmanın sadece %30 unu kelimeler oluşturur. %70 lik kısım ise beden dilidir. Örn. bazı ülkelerde kişilerin birbirleri ile konuşurken göz teması kurmaları hoş karşılanmaz.) 0 (Hiç)

7.3. Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların çalışma düzen ve alışkanlıkları 0 (Hiç)

7.4. Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların karakteristiklerini belirleyen kültürel normlar (Örn. farklı tutum ve davranışlar, inanç, estetik anlayışı....) 0 (Hiç)

7.5 Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların zaman konseptleri (Örn. yarından sonra bazı ülkerelerde 1-2 hafta sonrasını da işaret edebilir.) 0 (Hiç)

7.5 Proje takımında yer alan işveren ile imzalanan kontratın yaptırımlarının farklı ülkerde farklı olması (Örn. Almanlarla imzalanan bir kontrat oldukça detaylıdır ve şartlarına sonuna kadar sadık kalınır, ancak Ruslarla imzalanan bir kontrat ciddi bir bağlayılığı yoktur ve onlar bunu niyetin yazıldığı bir dökuman olarak görürler.) 0 (Hiç)

7.7 Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların karar alma ve uygulama süreçlerinin farklı olması 0 (Hiç)

Çözüm Öneriniz

7.8 Her ülkede mevzuatların farklılık göstermesi 0 (Hiç)

Standardlar ve Yapı Normları

7.9 Bu mevzuatların esnek yorumlara neden olacak şekilde hazırlanmış olması 0 (Hiç)

7.10 Savaşlar sırasında yok olmus teknik bilgi ve belge (Afganistan, Irak vs.) 0 (Hiç)

Suggestions for the solution

İşveren ve / veya Anlaşmadan Kaynaklanan Problemler

7.11 Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların işin öncelik ve önem sırasındaki farklı yorumları — 0 (Hiç)

7.12 Kontratta belirtilen işin süresini gerçekci olmaması — 0 (Hiç)

7.13 İşverenin sürekli işin kapsam ve ihtiyaç programında yaptığı değişiklikler — 0 (Hiç)

7.14 Yerel otoritelerden alınması gereken onayların sorumluluklarındaki belirsizlik — 0 (Hiç)

7.15 Yapılan bazı anlaşmaların yeterince detaylandırılmaması ve işverenin boşluklardan yararlanarak ek işler istemesi, vs. — 0 (Hiç)

7.16 şverenin yerel malzeme kullanımı konusunda diretmesi, projenin tasarım kısmını tamamen mimara bırakmaması, çok fazla müdahale etmesi — 0 (Hiç)

Çözüm Öneriniz

Yerel Otorite ile Yaşanan Problemler

7.17 Proje yapılan ülkedeki çizim standardlarının öğrenilmesi ve uygulanması — 0 (Hiç)

7.18 İki farklı kültürün insanı olmaktan kaynaklanan problemler (Örn. değer yargılarındaki farklılık, iletişimin yeterince kurulaması....) — 0 (Hiç)

7.19 Yerel otoritelerin onay açısından belirlenmesi ve sıralanması — 0 (Hiç)

7.20 İmar durumunun elde edilmesi-yorumlanması — 0 (Hiç)

Çözüm Öneriniz

Tek nol ;;;

7.21 Proje yapılan ülkenin teknolojik alt yapısının gelişmemiş olması — 0 (Hiç)

7.22 Savaşlar nedeni ile tahrip olmuş alt yapı — 0 (Hiç)

7.23 Gizlilik gerektiren projeleri internet aracılığı ile göndermek zorunda kalmak — 0 (Hiç)

7.24 Proje takımında yer alan işverenin, iş ortaklarının ve teknik elemanların kullandıkları çizim programlarının farklı olması — 0 (Hiç)

7.25 Proje tasarım gurubunun coğrafi açıdan bölünmüş olmasının getirdiği sorunlar (yüz yüze tartışmanın yeterince olamaması, bilgi iletiminde karşılaşılan problemler ...) — 0 (Hiç)

Çözüm Öneriniz

Ekonomik Durum

7.26 Proje yapılan ülkedeki ekonomik durumun istikrarlı olmaması (Örn. ekonomilerinde çalkantıların yaşanması) — 0 (Hiç)

Çözüm Öneriniz

Yolculuklar

7.27 Bu süreçte çok sık yolculuk yapmak zorunda kalmak — 0 (Hiç)

7.28Hava alanlarında,gümrüklerde yaşanan sıkıntılar (Örn. vize süreleri, vergiler, maketlerin taşınması vs.) — 0 (Hiç)

Çözüm Öneriniz

Genel Olarak

Çözüm Öneriniz

8_ Yukarıda belirtilen durumların konu başlıklarının önem derecesini işaretleyiniz

8.1 Kültür farklılıklarından kaynaklanan problemler 0 (Hiç)

8.2 Standardlar ve yapı normlarından kaynaklanan problemler 0 (Hiç)

8.3 İşveren ve/veya anlaşmadan kaynaklanan problemler 0 (Hiç)

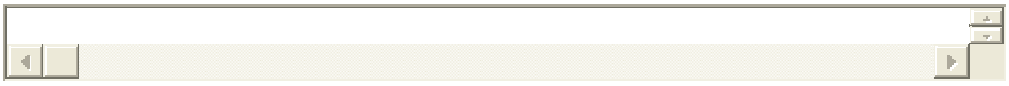
8.4 Yerel otorite ile yaşanan problemler 0 (Hiç)

8.5 Teknoloji 0 (Hiç)

8.6 Ülkedeki ekonomik durum 0 (Hiç)

8.7 Yolculuklarda ve gümrükte yaşanan problemler 0 (Hiç)

9_ Standard ve yapı normları ile ilgili problemleri çoğunlukla hangi ülke / ülkelerde yaşıyorsunuz? Özellikle hangi yapı



APPENDIX C

COMPILATION OF RAW DATA FROM QUESTIONNAIRES

Table C.1 Row data showing the types of project executed abroad

question 1.12 / 2.4	types of projects											
individual	shopping centers	residential	health buildings	trade centers	sport centers	administrative and office buildings	cinema and entertainment centers	transportation buildings	communication buildings	education buildings	tourism buildings	total project type
1	0	1	0	1	0	0	0	0	0	0	1	3
2	1	1	0	1	1	1	0	0	0	0	1	6
3	1	1	1	1	1	1	1	1	1	1	1	11
4	1	1	1	1	0	1	0	0	0	0	1	6
5	1	1	1	1	0	1	0	0	0	0	1	6
6	1	1	0	1	0	1	0	1	1	0	1	7
7	1	0	0	1	0	1	0	0	0	0	1	4
8	1	1	0	1	1	1	0	0	0	1	1	7
9	1	1	1	1	1	1	1	1	1	1	1	11
10	0	1	0	0	1	0	0	0	0	0	0	2
11	1	0	1	0	0	0	0	0	0	0	1	3
12	1	1	0	0	1	1	1	0	0	1	1	7
13	1	0	0	0	0	0	0	0	0	0	1	2
14	1	1	0	1	1	1	1	0	1	0	1	8
total number of individuals per project types	12	11	5	10	7	10	4	3	4	4	13	83
0 = no 1 = yes												

Table C.2 Row data showing area of conducting business abroad

question 1.13 / 2.5																													
individual	Middle East						Asia		Au.	C.I.S. Countries											Africa		Europan Union				Easten Europe			total types of countries
	Iraq	Iran	Jordan	Kuwait	Saudi Arabia	Syria	Mongolia	Afghanistan	Australia	Russian Federation	Belarus	Ukraine	Moldova	Uzbekistan	Turkmenistan	Kazakhstan	Kyrgyzstan	Georgia	Azerbaijan	Libya	Algeria	France	England	Poland	Germany	Rumania	Bulgaria	Macedonia	
1										1		1		1		1													4
2				1	1	1				1	1	1								1				1	1				9
3	1		1					1		1		1		1	1	1	1	1	1										11
4										1		1			1	1				1						1	1	1	8
5										1		1			1	1				1							1	1	7
6			1					1		1		1		1		1		1											7
7										1																1			2
8	1	1	1							1	1					1									1				7
9					1					1			1			1								1					5
10	1															1					1								3
11										1		1			1	1													4
12							1		1	1	1										1	1			1				7
13										1					1														2
14	1									1		1		1		1													5
total number of individuals per country	4	1	3	1	2	1	1	2	1	13	3	8	1	4	5	10	1	2	1	3	2	1	0	2	3	2	2	2	81

Table C.3 Row data showing the types of problems faced executing projects abroad

question 1.14/15																						
individual	Culture based problems				standards and regulation based problems			client and/or contract based problems					local authority based problems				technology based problems				local partner based problems		total number of problems per individuals
	undeveloped culture	communication problems	prejudice between parties	language differences	Different standards and regulations in different countries	deficiencies lead to flexible comments	Lack of technical information and documents	differences in priority and importance sequence	unrealistic estimation of project duration	constant modification request in list of requirements and content	uncertainty in responsibility of approvals	not detailed information about the terms of contract	drafting standards	The problems due to different origins	To determine and to arrange the local authorities in terms of approvals	To obtain and to interpret the situation of public works	The undeveloped technological substructure	The devastated substructure due to wars	Inevitable utilization of internet to transfer files that require secrecy	Differences in computer aided drafting programs	finding appropriate local project partner	risk of projects to be stolen	
1	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4
2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4
4	0	1	0	1	1	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	8
5	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3
6	0	0	0	1	1	0	0	0	0	1	0	0	0	1	1	1	0	0	1	0	1	0	8
7	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	6
9	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	4
10	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	5
11	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
12	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
frequency of problems with respect to problem types	1	5	1	7	8	1	1	1	6	6	2	1	1	1	2	1	1	1	1	1	1	1	51
0 = non-exist 1 = exist																							

Table C.4 Row data showing managerial problems generally encountered in the projects execute in abroad

question 1.16					
	managerial problems generally encountered in the projects execute in abroad				
individual	political&economical situation of the target country	culture of the target country	technological substructure of the country	standards and regulations of the target country	language differences
1	1	2	5	5	1
2	1	3	4	5	2
3	5	4	3	2	1
4	3	2	4	5	5
5	3	1	2	5	3
6	1	5	3	2	4
7	4	2	4	5	3
8	3	3	4	5	4
9	2	5	3	4	1
10	4	3	2	5	1
11	1	3	4	5	2
12	2	4	4	3	1
sensitivity of importance degree with respect to types of general managerial problems	30	37	42	51	28
1 = not important 2 = slightly important 3 = moderately important 4 = greatly important 5 = extremely important					

Table C.5 Row data showing types of information technologies used during the process

question 1.18					
individual	information technologies used				
	Internet and e-mail	Computer aided drafting programs	Video Conferencing Systems	Project Management soft-wares	Net-meeting
1	1	1	0	1	0
2	1	1	1	1	0
3	1	1	0	0	0
4	1	1	0	0	1
5	1	1	0	0	0
6	1	1	1	1	0
7	1	1	1	1	0
8	1	1	0	0	0
9	1	1	1	1	0
10	1	1	0	0	0
11	1	1	0	0	0
12	1	1	0	0	Com
total number of used information technologies	12	12	4	5	1

Table C.6 Row data showing the project services the firms provide

question 2.6									
	project services								
individual	feasibility	design	renovation	design analysis	material selection	bill of quantity	technical specifications	preparing bid package	engineering coordination
1	no	yes	no	no	no	no	no	no	no
2	no	yes	no	no	yes	yes	yes	yes	no
3	no	yes	yes	no	yes	yes	no	no	no
4	no	yes	yes	no	yes	yes	yes	no	yes
5	no	yes	yes	no	yes	yes	yes	no	yes
9	yes	yes	yes	yes	yes	yes	no	yes	yes
10	no	yes	no	no	no	no	no	no	no
12	no	yes	no	no	no	no	no	no	no
13	no	yes	no	no	yes	no	no	yes	yes
14	no	yes	yes	no	yes	yes	no	no	yes

Table C.7 Row data showing ratings of managerial problems in IDP

question 2.7																			
individual	Culture based problems							ratings with respect to culture based problems per individuals	standards and regulations based problems			ratings with respect to standard&regulations based problems per individuals	client and/or contract based problems						ratings with respect to client&contract based problems per individuals
	7-1	7-2	7-3	7-4	7-5	7-6	7-7		7-8	7-9	7-10		7-11	7-12	7-13	7-14	7-15	7-16	
	language differences	body language differences	differences in working habits	cultural norms	differences in time concepts	differences in understanding terms of sanction of the contracts	differences in decisions making and application process		Different standards and regulations in different countries	deficiencies lead to flexible clauses	Lack of technical information and documents		differences in priority and importance sequence	unrealistic estimation of project duration	constant modification request in list of requirements and content	uncertainty in responsibility of approvals	not detailed information about the terms of contract	Insufficient details in some items of the contracts	
1	1	1	2	1	2	2	2	11	3	3	1	7	3	3	4	3	3	2	18
2	0	0	1	1	3	0	2	7	1	1	0	2	2	0	2	1	1	1	7
3	2	1	4	1	3	4	2	17	1	3	3	7	3	3	3	3	0	4	16
4	4	1	2	3	3	3	3	19	3	2	3	8	3	3	4	3	3	3	19
5	2	1	3	2	2	4	3	17	3	3	3	9	3	4	3	3	2	2	17
9	2	1	3	3	3	3	4	19	2	3	1	6	3	2	3	2	3	4	17
10	2	0	2	3	3	1	3	14	4	3	3	10	3	1	4	4	3	1	16
12	1	1	1	2	1	1	1	8	1	1	0	2	1	2	2	2	3	2	12
13	2	1	2	2	1	2	2	12	1	1	0	2	2	3	3	3	3	2	16
14	1	2	3	3	2	4	4	19	1	3	1	5	3	3	4	3	3	4	20
sensitivity of importance degrees with respect to types of managerial problems	17	9	23	21	23	24	26		20	23	15		26	24	32	27	24	25	
0 = not important 1 = slightly important 2 = moderately important 3 = greatly important 4 = extremely important																			

Table C.7 (continued) Row data showing rating of managerial problems in IDP

question 2.7															
local authority based problems				rating with respect to local authority based problems per individuals	technology based problems					rating with respect to technology based problems per individuals	Economical situation	travel and custom based problems		rating with respect to travel&custom based problems per individuals	general
7-17	7-18	7-19	7-20		7-21	7-22	7-23	7-24	7-25		7-26	7-27	7-28		7-29
drafting standards	The problems due to different origins	To determine and to arrange the local authorities in terms of approvals	To obtain and to interpret the situation of public works		The undeveloped technological substructure	The devastated substructure due to wars	Inevitable utilization of internet to transfer files that require secrecy	Differences in computer aided drafting programs	Geographical diversity of the project design team		Unstable economical situation in the target country	The necessity for frequent travels within this process	Problems and difficulties experienced in customs in airports		Inability to control time losses
3	2	3	3	11	2	1	3	1	2	9	2	3	3	6	3
0	1	1	2	4	0	1	0	0	0	1	2	0	0	0	2
1	3	3	3	10	3	4	1	2	4	14	4	1	3	4	3
2	2	2	3	9	2	3	1	1	3	10	3	3	2	5	2
1	2	3	2	8	1	0	0	0	3	4	3	4	3	7	4
2	1	2	4	9	1	1	3	0	0	5	3	2	2	4	4
2	2	2	4	10	0	0	1	0	3	4	0	2	3	5	2
1	2	1	1	5	3	1	0	1	2	7	2	1	1	2	2
0	0	3	2	5	0	0	0	2	3	5	0	2	2	4	3
3	1	2	2	8	2	3	1	3	3	12	4	2	1	3	2
15	16	22	26		14	14	10	10	23	71	23	20	20		27

0 = not important 1 = slightly important 2 = moderately important 3 = greatly important 4 = extremely important

Table C.8 Row data showing rating of headings of the problems in IDP

question 2.8								
individual	types of problems							rating with respect to types of problems per individuals
	culture based problems	standards and regulations based problems	client / contract based problems	local authority based problems	technology based problems	economical stability of target country	travels and customs based problems	
1	1	2	2	3	2	2	3	15
2	0	1	1	1	1	3	1	8
3	0	2	2	3	2	4	1	14
4	2	4	4	3	1	2	1	17
5	1	2	3	3	3	2	2	16
9	2	2	4	2	1	4	1	16
10	1	4	3	2	3	1	3	17
12	1	1	2	1	1	2	1	9
13	1	2	2	2	2	0	0	9
14	1	2	3	2	2	1	1	12
sensitivity of importance degrees with respect to types of managerial problems	10	22	26	22	18	21	14	
0 = not important 1 = slightly important 2 = moderately important 3 = greatly important 4 = extremely important								

APPENDIX D

HYPOTHESES

- H_{04}: as the number of countries increases, importance rate of the problems increases

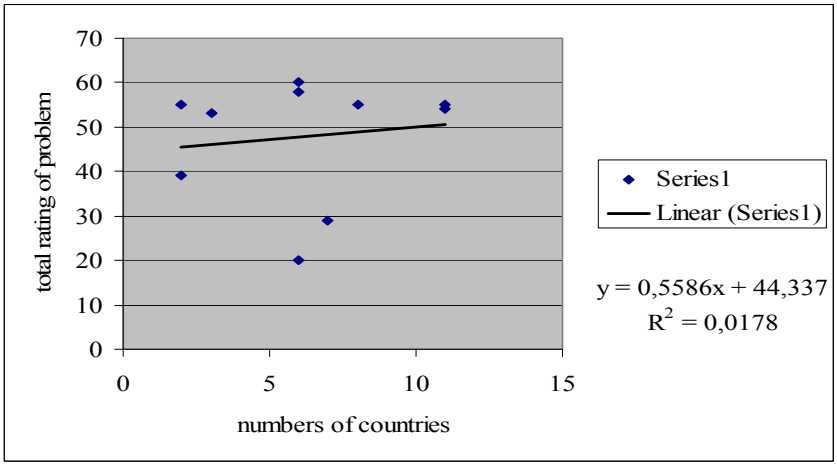


Figure D.1 Total rating of problems-Numbers of countries

Linear Regression analysis was applied to check if there is a relation between number of countries where the projects are executed and total rating of problems. Since R^2=0.0178 is much smaller than R^2=1, then it can be claimed that there is no correlation between the total rating of problems and numbers of countries.

- H_{05}: as the years of experience increases, importance rate of problems increases

Figure D.2 Total rating of problems-Years of experience

Total rating of problems was also checked with another parameter. In the analysis was derived R^2=0.3556, which is much smaller than R^2=1. As a result, it can be claimed that there is no significant relation between these two parameters. The hypothesis is rejected.

- H_{06}: as the average rate of employer based problem per individual increases, number of countries increases

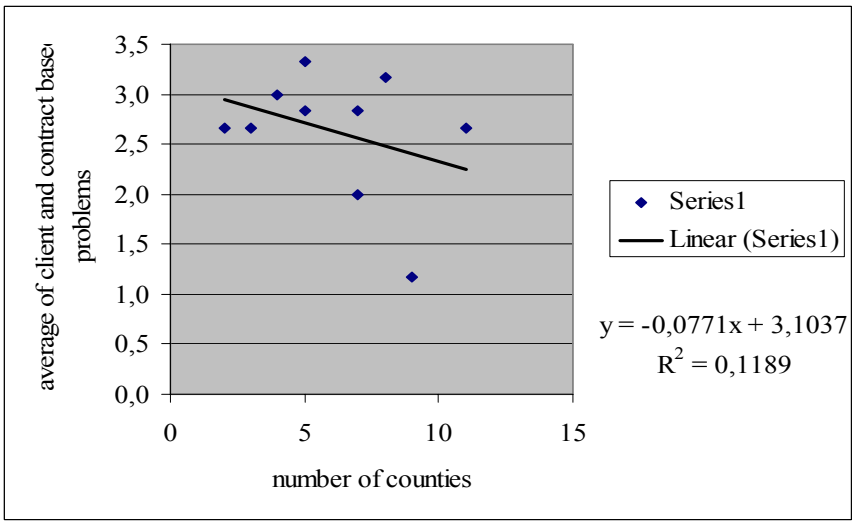


Figure D.3 Average rate of client and contractor based problem per individual – number of counties

Regression analysis were applied two more variables to if there is a significant relation to number of countries. One of those variables is the average rate of

client base problems. However, as presented on the graph, there is direct relation between the client based problems and number of countries.
The last variables analyzed are the average rate of standards and regulations based problems and number of countries. According to analysis presented figure D.4, it can be concluded that there exist no correlation between those two variables.

- H_{07}: as the average rate of standard based problem per individual increases, number of countries increases

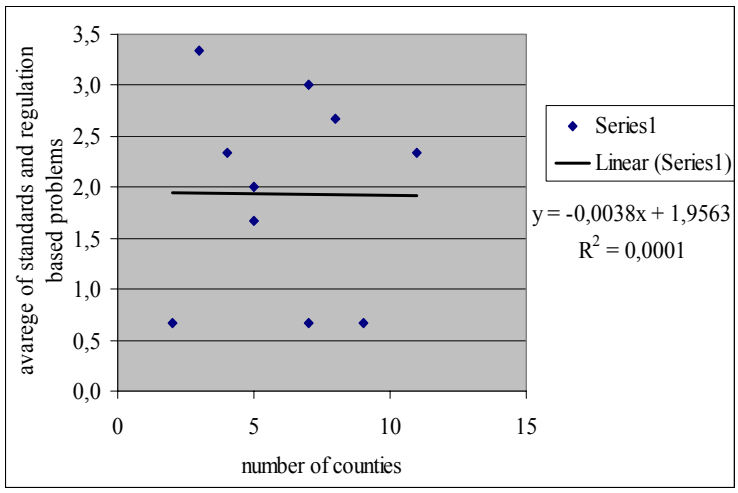


Figure D.4 Average rate of standards and regulations based problem per individual – Number of counties