CRITICAL SUCCESS FACTORS FOR BUILD OPERATE TRANSFER (BOT) PROJECTS: LESSONS LEARNED FROM AIRPORT PROJECTS

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ABSTRACT

CRITICAL SUCCESS FACTORS FOR BUILD OPERATE TRANSFER (BOT) PROJECTS: LESSONS LEARNED FROM AIRPORT PROJECTS

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BOT model is widely used in developing countries to facilitate the construction of immediately needed infrastructure projects with both technical and financial risks being borne by the private sector. BOT model differs from traditional ones because of its financial structure and operation service that is included in the concession. The aim of this research is to identify the critical success factors (CSFs) for BOT projects by examining real BOT projects, mainly airport projects. In this research, a detailed literature survey has been carried out as well as in-depth interviews with experts to identify the CSFs that are categorized in 13 groups. Based on these factors, a decision support

checklist has been developed. The checklist has the “source” of each CSF and the “phase” of the project that the CSF will have an effect. Finally two BOT projects, namely Dalaman and Aktau International Airport Projects, are studied thoroughly using the developed checklist.

This research gives clear description and understanding of CSFs for airport projects which was a missing part in the construction management literature together with illustrative real cases. The findings of this research may be helpful for decision makers at the initial stages of BOT projects by providing a checklist of CSFs and demonstrating their significance in each phase of a BOT project.

Keywords: Build-Operate-Transfer, critical success factors, airport privatization.

ÖZ

YAP İŞLET DEVRET (YİD) PROJELERİ İÇİN KRİTİK BAŞARI FAKTÖRLERİ: HAVALİMANI PROJELERİNDEN ÖĞRENİLEN DERSLER

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Yap İşlet Devret (YİD) modeli, acil inşa edilmesi gereken alt yapı yatırımlarının gerçekleştirilmesinde özel sektörün tüm teknik ve finansal riskleri üstlendiği ve gelişmekte olan ülkelerde yaygın olarak uygulanan bir modeldir. YİD modeli finansal yapısı ile birlikte, işletme döneminde hizmet servisinin yüklenici firma tarafından sağlanması nedeniyle, klasik modellerden farklılık arz etmektedir. Bu araştırmanın amacı, özellikle gerçekleştirilmiş havaalanı projeleri incelenerek, YİD projeleri için kritik başarı faktörlerinin (KBF) belirlenmesidir. Bu araştırmada detaylı bir literatür taraması yapıldıktan sonra, konunun uzmanları ile yapılan görüşmeler sonucunda KBF'ler 13 gruba ayrılmış

halde belirlenmiş ve bu faktörlere bağlı olarak, bir kontrol listesi geliştirilmiştir. Kontrol listesinde, projedeki her bir KBF'yi etkileyebilecek olan kaynak ve faktörlerin etkili olduğu süreçler gösterilmiştir. Sonuç olarak geliştirilmiş bu kontrol listesi kullanılarak Dalaman ve Aktau Uluslararası Havaalanları olmak üzere iki YİD Projesi incelenmiştir.

Yapılan bu araştırma ile, havaalanı projeleri için yapım yönetimi literatüründe eksikliği bilinen KBF'lerin belirlenmesi ve anlaşılmasına olanak sağlanmıştır. . Bu araştırma sonucunda, YİD projelerinin erken aşamalarında, karar vericilerin KBF'leri kontrol listelerini kullanılarak belirlenmesi ve karar verme konumunda bulunan yetkililere destek olunması amaçlanmaktadır.

Anahtar Kelimeler: Yap-İşlet-Devret, Kritik Başarı Faktörleri, Havalimanı Özelleştirmesi

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LIST OF ABBREVIATIONS

AKP:	Adalet ve Kalkınma Partisi
BOT:	Build Operate Transfer
BOO:	Build Own Operate
BOOT:	Build Own Operate Transfer
BTO:	Build Transfer Operate
CIP:	Commercially Important Person
CIS:	Commonwealth of Independent States
CSF:	Critical Success Factor
CUTE:	Common Use Terminal Equipment
DHMİ:	Devlet Hava Meydanları İşletmesi (State Airports Authority of Turkey)
ECR:	Euromoney Country Risk
EIB:	European Investment Bank
EPC:	Engineering Procurement Construction
GDH:	General Directorate of Highways
IFC:	International Finance Corporation
KBF:	Krıtik Başarı Faktörlerin
MTK:	Mezhdunarodnyi Transportnyi Koridor
NAO:	National Audit Office
PAT:	Pist Apron Taxiway
PPP:	Public Private Partnership
PFI:	Private Finance Initiative
RK:	Republic of Kazakhstan
SEZ:	Sea Port Aktau

SHGM:	Sivil Havacılık Genel Müdürlüğü (Directorate General of Civil Aviation of Turkey)
SPV:	Special Purpose Vehicle
SSR:	Soviet Socialist Republic
TOM:	Terminal Operational Manual
UK:	United Kingdom
USD:	United States Dollar
VIP:	Very Important Person
YİD:	Yap İşlet Devret

CHAPTER 1

INTRODUCTION

Execution of infrastructure projects in developing countries requires immense investment, foreign financing resources, advanced technology and technical and managerial knowledge. Hence those governments are not able to fulfill the rapidly growing need in infrastructure business (Nourzad 2009).

Political, economical, and technical environments of today's growing world have made outsourcing a solution for organizations to focus their resources and energy on their core businesses (Hemani 2006). Tending to privatization together with finance raising problems led governments to introduce a new financing model: Build-Operate-Transfer (BOT). The concept was first coined by Turkish Prime Minister Turgut Ozal in 1984 (Tiong 1990).

Nowadays BOT model is being used progressively more by developing countries for infrastructural projects. Governments have recognized the BOT method as a technique of financing the construction of immediately needed projects with both technical and financial risks being borne by the private sector (Tiong 1995).

In this model, private sector is committed to supply the finance of a project as well as carrying out construction and operation of the project which is usually undertaken by the government. After a specific

period of operation, ownership of the entity will be transferred to the government without any extra fee (Tiong 1990).

Public-Private Partnerships (PPP) creates a spectrum of models of privatization options from fully public sector to fully private sector. In some countries like United Kingdom and Australia the focus is more on the finance of the project. Therefore the new term "private finance initiative" (PFI) is introduced as a way of creating "public–private partnerships". In this model private capital will be the main source of funding for public infrastructure projects. Gidmen et al. (1995) illustrated the spectrum as shown in Figure 1.1.

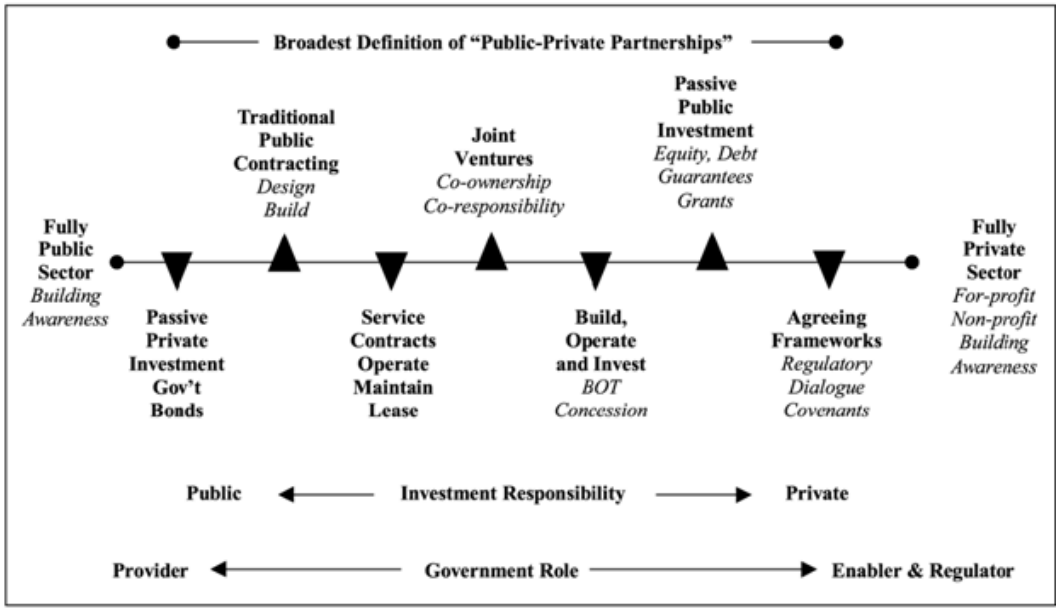

Figure 1.1. The spectrum of public-private partnerships (Gidmen et al. 1995)

In a usual BOT contract, a host government grants a right to a consortium consisting of private companies to finance an infrastructure project, to build and construct it, and to cover its fees and gaining profit to operate it for a period of time. The consortium must transfer the entity's ownership to the government without any extra charges (Nourzad 2009).

There are some other types of agreements which are similar to BOT but with some differences. Build Own Operate (BOO), Build Own Operate Transfer (BOOT) are two examples of these concessions. In a BOO project, ownership of the project remains usually with the Project Company whereas in a BOOT project, the private company owns the facility during the concession period (Gatti 2007).

A BOT project generally has following parties involved (Nourzad 2009):

1. Host government

   Government is one of the main parties in a BOT contract. Supervising the project is the responsibility of the government or an institute representing the government. It is possible that other governmental authorities are engaged in the project.

2. Consortium

   Consortium is the second party in a BOT contract. It consists of private companies which have contracts between them that determine their equity, share, responsibilities and etc.

3. Lenders

Lenders or in general terms, financial institutions are a main source of raising funds for the project. Financial structure strength of the project mainly depends on the lenders.

4. EPC contractor

   For construction of the project usually there is an EPC contractor which is responsible for mostly the whole build phase.

5. Suppliers

   Raw materials and machinery must be supplied by consortium in BOT projects. In some cases government should support consortium to supply required materials for construction and operation of project.

6. Buyers

   Product buyers, may be final customers or private or governmental companies.

7. Spare part suppliers

   During operation phase (which may be around 30 years) there is critical need for spare parts and consuming materials which the consortium must supply continuously during operation phase.

8. Operation contractors

   Usually for maintain, repair and operation works the consortium outsources the tasks to other contractors.

Consortium which is named as a Project Company too, is responsible for all phases of the project. Even if other suppliers or contractors handle some part of the project, the consortium itself is in charge and accountable to the government.

There are different models for BOT project structure. Schaufelberger (2005) has shown relationships among main BOT project participants as shown in Figure1.2.

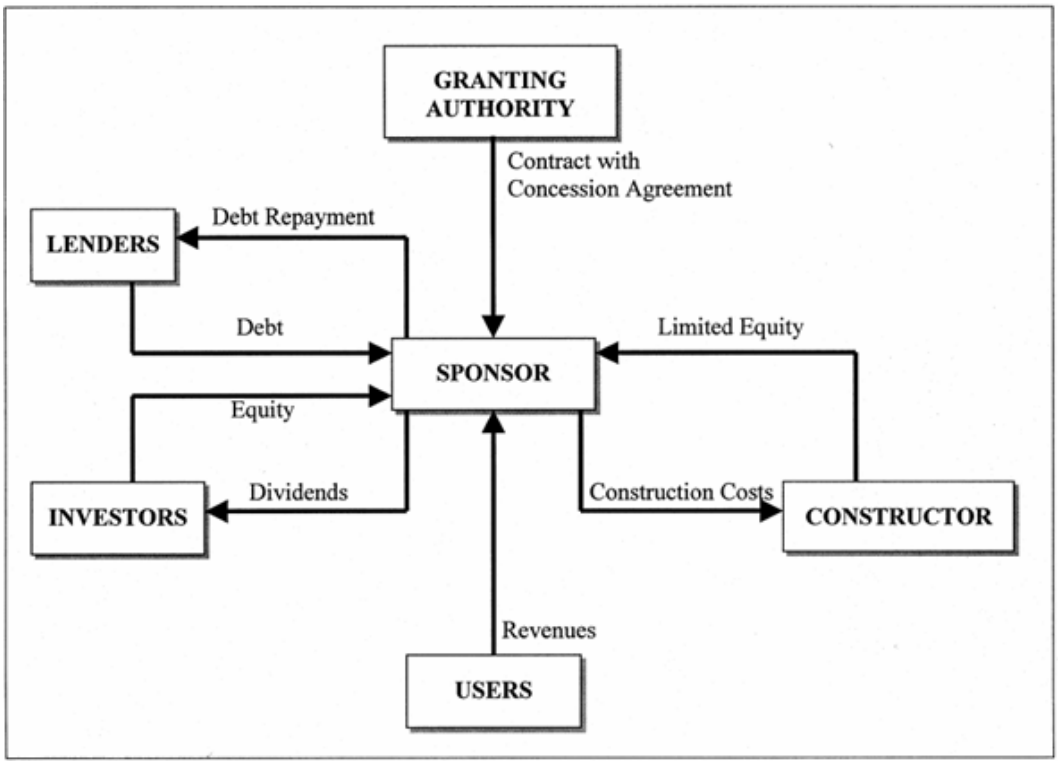

Figure 1.2. Relationships among BOT participants (Schaufelberger 2005)

As mentioned previously, BOT projects have more complexity than traditional contract models. A third of BOT projects in Asia have

had disappointing results (Schaufelberger 2005). This shows that delivering a successful project (from initiating stage to transfer phase) is complicated and needs special care and consideration of many factors during project life. Therefore to ensure success of a BOT project, authors have introduced success factors which investors must take care of during project stages.

These factors cover a variety of issues about the project: from project identification to host government stability and from technical issues to financial ones. Paying attention to these factors in all phases of the project is a principle to deliver a successful project.

By surveying the literature, it is seen that these critical success factors are introduced but unambiguous descriptions of all critical success factors are missing which is an essential need. Also a number of examples mentioned in different articles lack airport projects.

Therefore the main objective of this research was to give a clear description of CSFs by illustrating them with real projects. Accordingly for each critical success factor, relative example(s) from aviation sector projects were presented as a result of interviews with experts.

Categorizing those CSFs in a checklist together with source and phase and defining relationships and a level of significance of these factors and then updating the checklist by conducting interviews with experts are other important outcomes of this research. The checklist will help decision makers to have a better idea about CSFs and they will be able to generate formulas for success of projects at a very early stage.

Chapter 2 reports a summary of literature review about critical success factors for BOT projects. Because of the nature of PPP and BOT projects, critical success factors of each type are considered for the other one too. For better understanding of CSFs, factors with close meaning were put together and finally all CSFs are categorized in 13 groups. A description of each of these 13 factors together with examples mentioned in literature is presented in Chapter 2 as well.

Chapter 3 discusses research methodology and initial findings. It describes creation of Decision Support Checklist. Preliminary checklist was base for interviews to share that with experts and examine the validity of success factors and their significance during different project phases. Also sources of CSFs have been discussed. Last part of this chapter shows preliminary findings of this research while presenting real examples from airport projects for each critical success factor.

Chapter 4 shows how that checklist can be utilized in a project's initial stages by discussing it for two real cases: Dalaman and Aktau international airports. Lessons learned from these two projects are presented in this chapter.

Finally Chapter 5 presents main findings of this research, and discusses how these findings will be helpful to deliver more successful BOT projects. Suggestions for future research in this area are given at the end of this chapter.

CHAPTER 2

CRITICAL SUCCESS FACTORS FOR BOT PROJECTS

2.1. Literature Review

Critical success factors of BOT projects have been studied by different authors. The subject has been developed by introducing different CSFs from diverse points of views. Rockart (1982) has defined Critical Success Factors (CSFs) as: “Those few key areas of activity in which favorable results are absolutely necessary for a manager to reach his/her goals” (Li et al. 2005).

Articles and researches have considered CSFs for countries and specific sectors. Qiao et al. (2001) introduced eight independent CSFs in BOT projects in China:

1. appropriate project identification
2. stable political and economic situation
3. attractive financial package
4. acceptable toll/tariff levels
5. reasonable risk allocation
6. selection of suitable subcontractors
7. management control
8. technology transfer

To implement a successful BOT project they have suggested a framework which works similar to a flowchart. The framework is

shown in Figure 2.1. Taking those factors into consideration in related phases will help managers pay attention to them and execute a successful project.

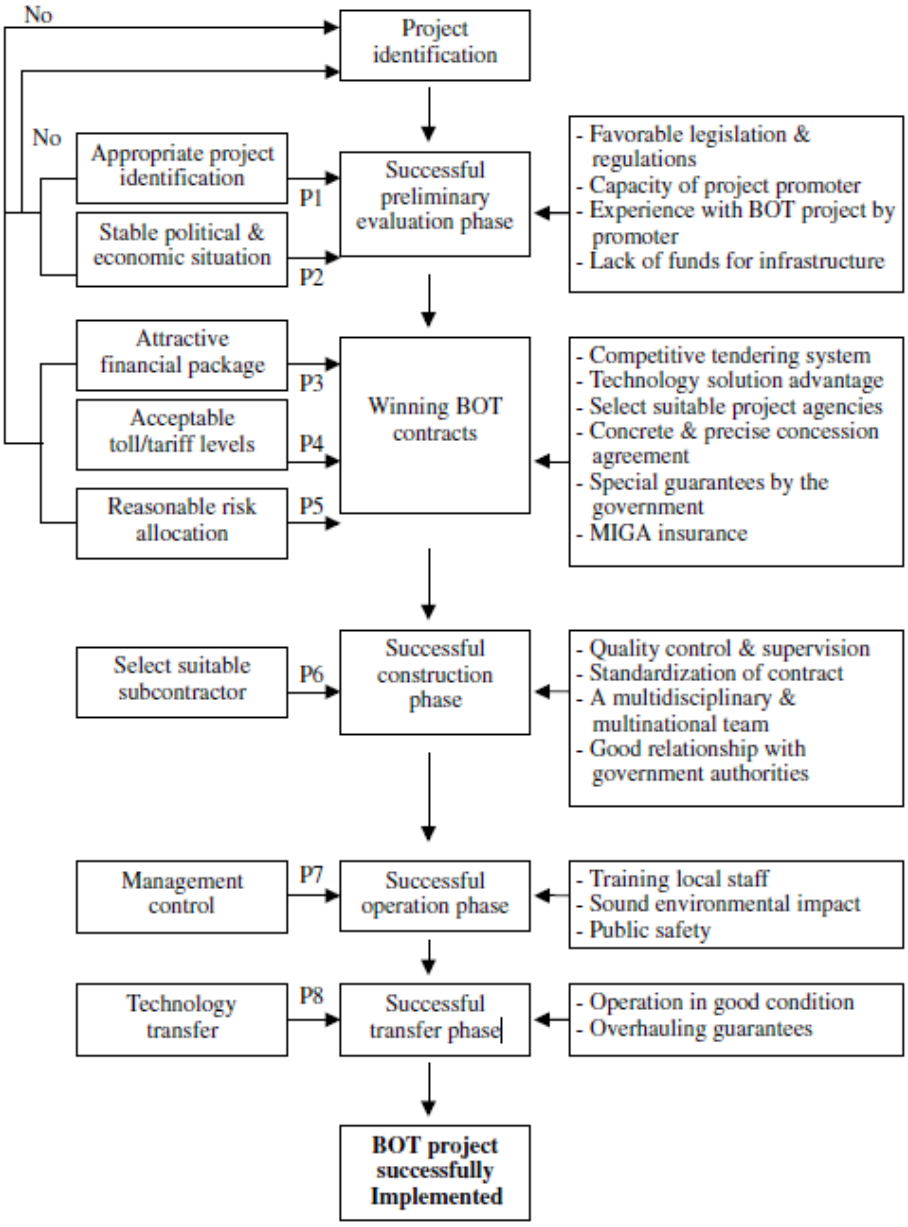

Figure 2.1. The Framework for Critical Success Factors of BOT Projects in China (Qiao et al. 2001)

Jamali and Olayan (2004) have discussed about success and failure mechanism of PPP in developing countries. They have mentioned critical success factors of PPP projects by reviewing related studies. There are key formation requirements for effective PPPs which have been studied by authors. Samii et al. (2002) emphasized on *resource dependency, commitment symmetry, common goal symmetry, intensive communication alignment of cooperation working capability, and converging working cultures* as requirements of forming an effective PPP project, whereas Kanter (1994) highlighted *individual excellence, importance, interdependence, investment, information, integration, institutionalization, and integrity* as the key ingredients of effective collaboration. These requirements with short description are shown in Table 2.1.

Table 2.1. PPP Key Formation Requirements (Jamali and Olayan 2004)

Based on	Requirement	Description
Samii *et al.* (2002)	Resource dependency	Recognition by the partners that what can be achieved together can not be achieved alone
	Commitment symmetry	Equal commitment from partners confirmed through the allocation of time and resources
	Common goal symmetry	Individual goals as an output or a subset of the overall program objectives
	Intensive communication	Regular communication through different channels/means
	Alignment of cooperation working capability	The sharing of knowledge across organizational boundaries to alleviate problems of information asymmetry and ensure convergence in learning skills and speed
	Converging working cultures	The joint development of a set of working practices and procedures to level out differences in working style/culture
Kanter (1994)	Individual excellence	Both partners are strong and have something of value to contribute to the relationship. Their motives for entering into the relationship are positive (to pursue future opportunities), not negative (to mask weaknesses or escape a difficult situation)
	Importance	The relationship fits major strategic objectives of partners so they want to make it work. Partners have long-term goals in which the relationship plays a key role
	Interdependence	The partners need each other. They have complementary assets and skills. Neither can accomplish alone what they both can together
	Investment	The partners invest in each other (e.g. equity swaps or mutual board service) to demonstrate their respective stakes in the relationship and each other
	Information	Communication is reasonably open. Partners share information required to make the relationship work, including their objectives/goals, technical data/knowledge of conflicts, trouble spots or changing situations
	Integration	The partners develop linkages and shared ways of operation so they can work together smoothly
	Institutionalization	The relationship is given a formal status, with clear responsibilities and decision-making processes
	Integrity	Partners behave toward each other in honorable ways that enhance mutual trust without abusing the information they gain, nor undermining each other

Hagen (2002) has focused on partnership and mentioned four Cs as critical for successful pre-selection of alliance partners. Four Cs are:

***C**ompatibility, **C**apability, **C**ommitment and **C**ontrol*. Pongsiri (2002) emphasizes the establishment of a transparent and sound regulatory framework as a necessary predecessor to private sector participation in a PPP project.

In some studies researchers have mentioned CSFs for some specific project types. Zhen-Yu Zhaho et al. (2010) has categorized 31 different CSFs for BOT electric power projects in China in 5 different categories taken from previous studies:

C1: Project feasibility

C2: Project environment

C3: Project company

C4: Project contractor

C5: Project suppliers

Jefferies et al. (2002) identified CSFs for a sports stadium project as: *solid consortium with a wealth of expertise; significant experience; good reputation; a professional approval process; and innovation in the financing methods of the consortium* (Li et al. 2005).

Li et al. (2005) have summarized above mentioned factors into 19 CSFs by Authors as shown in Table 2.2.

Table 2.2. Summary of CSFs for PPP projects (Li et al. 2005)

Critical success factor	Source
Strong private consortium	Jefferies et al. (2002) Tiong (1996) Birnie (1999)
Appropriate risk allocation and risk sharing	Qiao et al. (2001) Grant (1996)
Competitive procurement process	Jefferies et al. (2002) Kopp (1997) Gentry and Fernandez (1997)
Commitment/responsibility of public/private sectors	Stonehouse et al. (1996) Kanter (1999) NAO (2001b)
Thorough and realistic cost/benefit assessment	Qiao et al. (2001) Brodie (1995) Hambros (1999)
Project technical feasibility	Qiao et al. (2001) Tiong (1996) Zantke and Mangels (1999)
Transparency in the procurement process	Jefferies et al. (2002) Kopp (1997) Gentry and Fernandez (1997)
Good governance	Qiao et al. (2001) Frilet (1997) Badshah (1998)
Favorable legal framework	Bennett (1998) Boyfield (1992) Stein (1995) Jones et al. (1996)
Available financial market	Qiao et al. (2001) Jefferies et al. (2002) McCarthy and Tiong (1991) Akintoye et al. (2001b)

Table 2.2. (continued)

Political support	Qiao et al. (2001) Zhang et al. (1998)
Multi-benefit objectives	Grant (1996)
Government involvement by providing guarantees	Stonehouse et al. (1996) Kanter (1999) Qiao et al. (2001) Zhang et al. (1998)
Sound economic policy	EIB (2000)
Stable macro-economic environment	Qiao et al. (2001) Dailami and Klein (1997)
Well-organized public agency	Boyfield (1992) Stein (1995) Jones et al. (1996) Finnerty (1996)
Shared authority between public and private sectors	Stonehouse et al. (1996) Kanter (1999)
Social support	Frilet (1997)
Technology transfer	Qiao et al. (2001)

Complexity of BOT projects and long project life require special attention to project phase. Lin Qiao et al. (2001) have considered this in their research and categorized CSFs according to their phases. They have introduced 6 different phases for Chinese BOT projects: *preliminary qualification evaluation phase, tendering phase, concession award phase, construction phase, operation phase, transfer phase*. Simplified copy of table of CSFs vs. project phase is presented in Table 2.3.

Table 2.3. CSFs vs. project phase

Project Phase	CSF
Preliminary Qualification Evaluation Phase	Appropriate project identification Stable political and economic situation Favorable legislation regulations The capability of project promoter Experience with BOT project by promoter Lack of funds for infrastructure project
Tendering Phase	Competitive tendering system Attractive financial package Acceptable toll/tariff levels Technical solution advance Select suitable project agencies
Concession Award Phase	Concrete and precise concession agreement Reasonable risk allocation Special guarantees by the government Multilateral investment guarantee agency insurance
Construction Phase	Quality control and supervision Select suitable subcontractor Standardization of engineering contract A multi-disciplinary and multinational team Good relationship with government
Operation Phase	Management control Training local staff Sound environmental impact Public safety
Transfer Phase	Technology transfer Operation in good condition Overhauling guarantees

Lack of clear description of each critical success factor is an obvious fact while studying researches. Some authors took a glance at CSFs by only one word for each, whereas others went into more details

by categorizing and forming tables and illustrating meanings by some examples.

Airport BOT projects have not been a subject for critical success factors studies yet as well as these projects have not been mentioned even as examples of other studies.

Authors have discussed about success factors but not about sources which have more effects on those CSFs. For example technology transfer is a critical success factor, but how can this factor be affected? Which of these sources have more effects on the factor: Government, consortium, or country conditions?

These missing or less developed parts were the main reason to expand a table by defining CSFs vs. source and project phase and conducting this research to focus more on airport projects and create the checklist.

2.2. 13 CSFs Defined in this Research

After literature review, success factors with same or close meaning were grouped in 19 groups at the beginning and thereupon reviewed carefully so that factors were merged and number of groups reduced to 13.

These critical success factors along with their definition, descriptions, and mentioned examples in the literature are as follows:

1. APPROPRIATENESS OF PROJECT IDENTIFICATION

As Qiao et al. (2001) have explained, possibility of better outcome in initial phase of a BOT project depends on appropriateness

of project identification. Selection of a proper project to invest in and one which is defined according to demonstrated need is very critical for investors and they must be careful about this issue. A project which is identified according to real need has more chance of being successful and to be commercially profitable. Such a project would be attractive for investors who want to be sure that their investment can be recouped as well as making a satisfactory profit.

It means the project must be recognized by people since BOT is a kind of investment which revenue depends on how the project is welcomed by public.

Considering the above mentioned facts, appropriateness of project identification has a positive impact on success of a BOT project.

2. THOROUGH AND REALISTIC COSTS-BENEFIT ASSESSMENT

Li et al. (2005) has mentioned different views of public and private sectors towards financial analysis of a BOT project. The important task in assessment of costs and benefits is how uncertainty is to be treated. The point is in the initial stages of a project; both costs and benefits are obtained from forecasts anticipated over 3 to 30 years of project life.

The better the assessing of costs-benefits, the possibility of having a successful project is higher.

Dikmen et al. (2008) have made a comparison between two projects in Turkey: one successful project and one cancelled project: Izmit Bay Crossing vs. Gocek Tunnel.

The first attempted implementation of a BOT approach by General Directorate of Highways (GDH) was Izmit Bay Crossing Project in 1994. This project was cancelled due to lack of preliminary design and adequate information, legislative problems and an inadequate tendering process. The government did not specify the construction method for the crossing except for the technical requirements such as width and design speed. Three alternative methods offered by bidders were divided into multiple schemes according to the construction method to be used. The bid fell within the range of $937m to $1.41bn, depending on the proposed construction technique and alternative routes. A sophisticated design could result in higher construction costs that would need to be supported by higher toll rates. These facts prevented bidders to assess costs and benefits realistically and thoroughly. After this failure, the second trial in the transportation sector was the successfully completed Gocek Tunnel project which was the first BOT transportation project. In the tender documents of this project the construction method and the toll rate were fixed. The bids were evaluated on the basis of a single criterion, the operation period duration. Fixing all other criteria except the operation period left no space for claims and tender and the project were conducted successfully.

3. EFFECTIVE AND COMPETITIVE TENDER AND PROCUREMENT PROCESS

Accurate tender evaluation method significantly affects success of a BOT project while success of an evaluation system strictly depends on application of right criteria in the process (Dikmen et al. 2008).

Different methods and criteria have been suggested for having a competitive tender and evaluation system.

It is also very important to have a transparent and competitive tendering and procurement process. Li et al. (2005) suggests three features as important for transparency: good communication between the public and private parties; the private sector openly consulting with the public sector and its adviser, while keeping responsibility for all decisions; and the private sector establishing clear criteria for making decisions. The National Audit Office in UK (NAO, 1999) suggests establishment of three key conditions for a successful and competitive tendering process as follows:

a) A good tender list of companies invited to bid
b) A clear specification of the department's requirements
c) Competitive tension maintained throughout the procurement process

4. TECHNICAL FEASIBILITY OF PROJECT

Modern technologies usually increase risk of projects (Li et al. 2005). Technical feasibility of project can be considered from two aspects: its effect in winning a tender, and its effect in success of a BOT project in general. In evaluation of different proposals for a specific project, one who has proven technology to meet needs of the project

will be more attractive to the government and will have competitive advantage against others (Tiong 1996).

Technical feasibility is critical from another point of view. To have a technologically smooth transfer the project should be without a high level of complexity. Having feasible technology will facilitate the transfer phase of a BOT project. Specifically in international BOT projects, which require transfer of advanced technology from a developer from a more developed country to a local company in a less developed country and finally to the host government.

Technology transfer increasingly has been focused on management techniques, distinct operating methods, and ultimate project production technology. Hence in the transfer phase of a project, smooth technology transfer has a significant positive effect on success of a BOT project (Li et al. 2005). Smooth transfer strictly depends on feasibility of technical characteristics of the project.

Li et al. (2005) pointed that novel technologies add riskiness of projects. As an example in Australia for a new toll way project, commissioning tasks faced with difficulties because of advanced electronic tolling system which caused several months delay in the opening of the project. Part of this period was operation of this facility as toll-free which significantly reduced the revenue of project.

5. FEASIBILITY OF QUALITY, SAFETY AND ENVIRONMENTAL REQUIREMENTS

There are a number of quality, safety and environmental requirements in each BOT project. Since these projects are usually with

long duration (including operation and transfer phases) feasibility of those requirements affects the success of BOTs. Tough requirements and hard conditions will increase costs both for construction and operation phases. On the other hand, some financial institutes have their own environmental requirements and raise fund only for projects which meets these requirements.

Thermal power plants developments are always with special concerns about environmental issues. Zhao et al. (2010) studied thermal power versus wind power. Different concerns about these two types of power plants are well discussed in the study. Thermal power plants need more attention about environmental issues. The balance of the new-built power plants and the environmental protection needs to be considered and efforts need to be made to promote the BOT power projects with high efficiency and low pollution.

6. REASONABLE AND EFFECTIVE RISK ALLOCATION

Risks are an inseparable part of each project. Because of the nature of BOT projects, they have specific risks and due to their long duration, managing risks is very important. Since BOT projects are investment projects, sponsors of BOT projects have become sensitive to the need to identify and allocate risks at the initiating stage of project (Qiao et al. 2001). The more reasonable the risk allocation, the greater is the possibility of having a successful BOT project.

Reasonable risk allocation means to assign each risk to the party best able to mitigate it. Thus to have a successful BOT project, strategic attitude to risk allocation is vital during project phases (Li et al. 2005).

7. INTEGRATION AND STRONG CONSORTIUM STRUCTURE

To have a successful BOT project, companies which form a consortium should explore other members' strengths and weaknesses and join together with high a level of encouragement and utilize their individual strengths (Li et al. 2005). The integrity between forming parties is important from different points of view. As an example if there is a good cooperation and integrity between Construction Company and Operation Company who will operate the facility in operation phase, fewer problems would occur. Intensive communication and common goal symmetry will enhance strength and integrity of consortium (Samii et al. 2002).

8. STRONG TECHNICAL AND MANAGERIAL CAPABILITIES OF CONTRACTOR

There is a contractor in any BOT consortium (promoter) which deals with construction issues. Since construction is a very critical phase of BOT project life, success of this phase affects the success of the whole BOT. Hence, the strength of the construction contractor has effect on the success of the project. In order to have a successful project, the contractor must have strong technical and managerial capabilities along with good experience of promoter in BOT projects.

As soon as construction phase is finished successfully, operation may start and consequently revenue and benefit will start earlier.

9. STRONG FINANCIAL STRUCTURE OF CONSORTIUM

One important part of the project developer consortium is the financial part which means lenders, banks which raise funds for the project. Reasonable investment structure of Project Company facilitates accomplishing success in BOT projects. Developer should have adequate financial and managerial resources to be able to form a strong financial structure (Zhao et al. 2010).

10. GOOD CONSORTIUM AND GOVERNMENT RELATIONSHIP AND COMMITMENT

Two main parties of a BOT project are the government. In order to have a successful project both parties should commit their best resources to the project. From another viewpoint, good relationship between consortium and government increases the chance of success in the project. National audit office mentions that to secure a successful project, managing relationship is important (NAO 2001b).

11. STABLE AND MATURE LEGAL AND ADMINISTRATIVE FRAMEWORK

Existence of mature legal framework for a BOT project is a necessary predecessor for a successful project. Without such a legal

system participation of the private sector is difficult in PPP or BOT project (Pongsiri 2002).

In some countries the concept of BOT is new, hence the legal system does not recognize BOT well and participants face different problems in lack of law during construction and operation phases.

Subsistence of regulation provides guarantee to developer that the system will supply protection about expropriation, arbitration of disputes and etc. (Jamali et al. 2004).

12. STABLE POLITICAL AND ECONOMIC SITUATION OF THE COUNTRY

Because of nature of BOT which usually has long life cycle, political and economical situation of the host country directly affect the success of the project. The more stable the political and economic situations, the more successful BOT project. Stable political and economic environment of a country is not only a success factor but a vital requirement for having a successful BOT project. (Qiao et al. 2001)

Countries with unstable situation both in economics and politics have high risk and will not be attractive for investors.

China is one of developing countries which has recognized BOT agreements and benefited from this to develop its infrastructure. Lin Qiao et al. (2001) have mentioned that rapid economic expansion has created the largest infrastructure market in China. As part of this country's effort to attract foreign financial sources into the

infrastructure sector, the Chinese government has continually demonstrated its intention to adopt BOT contracts in infrastructure projects.

13. AVAILABILITY OF ADEQUATE GOVERNMENT SUPPORT AND GUARANTEE

Governments in some cases provide a form of guarantee to the concessionaire. Minimum revenue amounts, No second facility, and recognition of concessionaire right to operate existing facilities are a few examples of ways the host government can provide guarantee.

Governmental support is also important to have a successful BOT project. Support has a general meaning here and includes any type of support from the government during the project. Approving requests for changes, increase in tolls, and etc are examples of government support.

The importance of these guarantees and support is that they tend to lower risks taken by the developer and to support cash flows of the developer and to hoist confidence of investors for success of project and to raise fund for the project (Zhang et al. 1998). Tiong (1990) has mentioned 4 different types of incentives which project sponsors should negotiate about with governments but guarantees are not limited to them:

1. Foreign exchange guarantees
2. Offshore escrow account
3. Offtake agreement
4. Feedstock agreement

In the Shanghai YD 2nd Tunnel project (Zhang et al. 1998), the local authority provided six major guarantees for the concessionaire. In the UK, some attractive infrastructure projects are given a tax holiday of five to ten years (Merna and Smith 1999).

2.3. Construction of "Decision Support Checklist"

The 13 CSFs formed the base of a checklist called "Decision Support Checklist". The "Decision Support Checklist" is used while conducting interviews with the experts (Table 2.4.). 3 columns that appear in the checklist and their description are as follows:

Table 2.4.Decision Support Checklist

	CSF	Source				Project Phase			
		Government	Country	Project	Developer	Initiating	Build	Operate	Transfer
1	Appropriateness of project identification								
2	Thorough and realistic costs-benefits assessment								
3	Effective tender evaluation process								
4	Technical feasibility of project								
5	Feasibility of quality, safety and environmental requirements								
6	Reasonable and effective risk allocation								
7	Integration and strong consortium structure								
8	Strong technical and managerial capabilities of contractor								
9	Strong financial structure of consortium								
10	Good consortium and government relationship and commitment								
11	Stable and mature legal and administrative framework								
12	Stable political and economic situation of the country								
13	Availability of adequate government support and guarantee								

1. **CSFs**

   This column introduces critical success factors according to literature. After extensive literature review, CSFs were summarized in 19 categories and again in another review finalized in 13. It was tried to choose a wording which best covers different terms used in literature.

2. **Source**

   This is new term which is introduced in this research to better study of CSFs. Source in this checklist means a source which affects success factors, where effects come from. For example when considering "availability of adequate government support and guarantee" as a critical success factor, the source which affects this CSF could be Government. Neither "country" (as defined below) nor "project" affect this "availability" and it depends on government legislation system and decision to guarantee a portion of incomes for the project or not. Source is divided into four categories. If the cell under one of them is filled it means that this source affects that critical success factor. Four sources are as follow:

   2.1. Country:

   i.e.: Turkey, Kazakhstan, Iran and etc.

In this checklist “country” is considered with properties such as: Geographic location, environment, culture, and economic and political situation.

Even though the political situation is affected by the government but it is possible to judge about the country itself regardless of the government in power. Country here means host country, country which the project is going to be implemented in not country of developer or contractor.

2.2. Government:

As previously mentioned in terminology, government means client, governmental clients such as Ministry of Health (in PPP hospital project), the authority, legislation department, and guarantee provider.

2.3. Project:

It means project by itself regardless of its place, country, and host government. Projects like hospital, airport, tunnel, highway, power plant, and etc. if the project itself affects the CSF despite of country and government.

2.4. Project Company:

There are different words used in literature for the developer, such as: Project consortium, Project promoter, Project developer, Project company developer, Public

agency, SPV (Special Purpose Vehicle) and concessionaire.

For this checklist "Project Company" is used to mention the company which deals with project entirely including investment, construction, and operation.

3. Project phase

Each BOT project consists of different phases. Qiao et al. (2001) defined 6 different phases for a BOT project while Tiong (1990) defined 5 phases for a BOT project by adding pre-investment and implementation phases to BOT (Build, Operate, and Transfer) term. Considering importance of tendering and pre-investment tasks, in this research, 4 main phases have been considered:

3.1. Initiating phase:

It includes, preliminary qualification evaluation phase, tendering phase, concession award phase, which all of them are considered as "initiating"

3.2. Build phase:

This phase is construction phase which construction jobs are being conducting then.

3.3. Operate phase:

Starts after finishing construction of project and when it goes under operation and developer starts gathering benefit and toll from the constructed project.

3.4. Transfer Phase:

After contractual period of operation is passed it is time for transferring the project to the host government authorities.

CHAPTER 3

RESEARCH METHODOLOGY AND PRELIMINARY FINDINGS

3.1. Research Method

To conduct this research a comprehensive literature review has been done and an initial checklist of CSFs has been developed. Reviewing the literature helped for better categorizing CSFs and putting related examples with success factors. Also missing parts or less developed items lead to extending the checklist and to conduct interviews with experts.

According to literature a list of 13 CSFs and subsequently "Decision Support Checklist" were created. This checklist became a basis for interviews. The checklist was discussed with experts and they contributed for enhancement of checklist by providing more real examples and experiences.

After doing this part, two BOT Airports were selected for deep study and examination: Dalaman Airport and Aktau Airport. Comparison between these two airports - which both are contracted with BOT method and with the same developer but in two different countries – together with lessons learned from them are main part of findings of this research.

3.2. Interviewees: Introduction

For understanding CSFs' effects during project life 10 face to face interviews were accomplished. Experts were selected from two Turkish companies which are active in aviation sector and have good experience in BOT airport projects and have some airports under operation under BOT concession.

The interviewees were selected from range of expertise. Not only technical personnel but managers and staff from financial departments to better cover the realities of projects. Therefore different perspectives of people having different roles in BOT projects are reflected in the research findings.

To keep companies' names confidential they are called as Company A and B. Company A which is a group of companies, now operates an airport in Turkey and another one in Kazakhstan, both under BOT contracts.

The interviewees from this company were:

1. General Manager
2. Construction Coordinator
3. Airport Operation Manager
4. IT and Systems Manager
5. CEO (Chief Executive Officer)
6. Finance Director of Kazakhstan branch of company
7. Ex-finance director of Company

Company B, operates totally 10 airports inside and outside of Turkey. There are four airports in Turkey 2 of which are BOT projects. The interviewees from this company were:

1. CFO (Chief Financial Officer)
2. Financial Department Manager
3. Construction Department Manager

3.3. Interview Findings

The main aims of conducting interviews with experts were:

- To check the validity of CSFs for airport BOT projects
- To update the checklist if it is necessary
- To collect more real examples from aviation sector in BOT method to demonstrate the significance of CSFs that appear in the checklist
- To explain success factors more clear than what is already existed in the literature
- To present a checklist with its appendixes (examples and case studies) to help decision makers of BOT projects to have better imagine of project's conditions and CSFs in advance.

As previously discussed in section 2.4. of this thesis 13 CSFs were defined according to literature to be a base for the research. Preliminary Checklist (Table 2.4.) was filled in accordance with what was observed in the literature and also personal experience of researcher. Initial filled checklist (Table 3.1.) was reviewed by experts in detail and was discussed if the relations are determined correctly and

Xs are put accurately. After interviews and discussions, Table 3.1. was reviewed and comments and ideas were reflected to have updated checklist (Table 3.2.).

The initial checklist and final one are as follows:

Table 3.1. Initial Filled Checklist

	CSF	Source				Project Phase			
		Government	Country	Project	Developer	Initiating	Build	Operate	Transfer
1	Appropriateness of project identification	X			X	X			
2	Thorough and realistic costs-benefits assessment	X			X	X			
3	Effective tender evaluation process	X				X			
4	Technical feasibility of project			X		X			
5	Feasibility of quality, safety and environmental requirements		X	X		X		X	
6	Reasonable and effective risk allocation	X			X	X	X		
7	Integration and strong consortium structure	X			X	X			
8	Strong technical and managerial capabilities of contractor				X	X	X	X	
9	Strong financial structure of consortium				X		X	X	X
10	Good consortium and government relationship and commitment	X			X	X	X	X	
11	Stable and mature legal and administrative framework	X				X		X	
12	Stable political and economic situation of the country		X					X	
13	Availability of adequate government support and guarantee	X				X		X	

Table 3.2. Updated Checklist

	CSF	Source				Project Phase			
		Government	Country	Project	Developer	Initiating	Build	Operate	Transfer
1	Appropriateness of project identification	X			X	X			
2	Thorough and realistic costs-benefits assessment	X			X	X			
3	Effective tender evaluation process	X		X		X			
4	Technical feasibility of project	X		X	X	X	X	X	X
5	Feasibility of quality, safety and environmental requirements	X	X	X	X	X	X	X	
6	Reasonable and effective risk allocation	X			X	X	X	X	
7	Integration and strong consortium structure		X		X	X			
8	Strong technical and managerial capabilities of contractor				X	X	X	X	
9	Strong financial structure of consortium	X	X		X	X	X	X	
10	Good consortium and government relationship and commitment	X			X	X	X	X	
11	Stable and mature legal and administrative framework	X	X			X		X	
12	Stable political and economic situation of the country	X	X			X	X	X	X
13	Availability of adequate government support and guarantee	X	X			X	X	X	X

After interviewing with experts, other ideas were shared with initial interviewees. It means if an expert disagree with some previously filled cell, the reason and idea was shared by previous expert. It could be said there is a kind of consensus about this checklist.

Table 3.2. shows that government and developer are two most important sources which affect success factors. Some success factors are more critical because they are in high level of importance during all phases of project. "**Technical feasibility of project**", "**stable political and economic situation of the country**", and "**availability of adequate government support and guarantee**" are those three factors.

Developers which intend to invest in airport BOT project must carefully pay attention to those factors prior to the project and during life cycle of project.

Also it is understandable from the checklist that host government and developer have main role in identifying the BOT project appropriately and in having more realistic cost-benefit assessment. Since the developer is rolling as investor as well there is a room for negotiations about project identification. BOT projects are not like EPC projects which are restricted and for most of features of project are unchangeable.

Technical feasibility of project which has high level of significance during all phase of project is under effect of government, project, and developer. Decision makers should pay special attention to technical feasibility of project at preliminary studies of project.

Focusing on financial issues may distract their attention to technical issues which may cause loss of millions of dollar in construction, operation, or even transfer phase.

Country affects strength of consortium structure. When an investor tend to enter new country's market, studying past local BOT experience is critical. There is more possibility of finding local partner to have strong consortium in countries with BOT experiences rather than countries which are unfamiliar with the term.

Last three CSFs are mostly affected by government and country. Paying attention to these factors which have significance role in success of BOT projects should be done in initiating stage of project. Countries without legislation system which recognizes BOT agreements are in high risk for these projects.

In the next part, examples from aviation sector will be presented to give better understanding about CSFs.

3.4. Examples

#1 APPROPRIATENESS OF PROJECT IDENTIFICATION

Example 1, Country: Macedonia, Project: Stip Cargo Airport

In the year 2008, 4 concessions under one BOT tender was announced by the government. The concession was for the operation of two existing airports and construction of a new terminal building in city of Skopje and also the construction of a new cargo airport – from scratch – in Stip. For the new cargo airport there were some questions about commercial viability. The more important problem for this

project was the project was not technically wise and viable too. For this tender there was a big argument among bidders and originally there were four bidders and just because of the 3rd airport all the other bidders withdrew from the tender except one Turkish company. The Turkish company won the tender in early 2009 and started operation of two existing airports.

This company remained and tried to solve this problem. It was not technically wise because there was not any wind study and the project was not identified appropriately. Normally to build a new airport 10 years of historical data of wind, earthquake, and geotechnical conditions of ground is needed. There were no available measurements for this area. For this project, it was mentioned by the winner that it is not possible to build the airport till enough data is provided. The solution was postponing construction of project for 10 years (2020) to gather adequate data.

This is an example of how a project which is not correctly identified would not attract as many bidders as it would normally do.

#2 THOROUGH AND REALISTIC COSTS-BENEFIT ASSESSMENT

Example 2, Country: Turkey, Project Name: Bodrum Airport

Bodrum as a crowded touristic city of Turkey is very attractive for investors who intend to invest in its Airport. In the year 2006 in the tender for new international terminal building eight participants

attended. The shortest period of operation offered by the winner was three years which was almost half of all other participants' offer.

This showed that there was a mistake in winner's calculations. There were some rumors that the winner may have thought that the departing passenger fees are received from both departing and arriving passenger which means that they have doubled the revenue. Even it is not proved but it seems true because they have almost estimated the period as half of the period that would have normally been feasible for developers you to get back the investment.

Since it was a valid bid the government could not cancel it but because of this problem, project has not been launched and is planned to open at end of 2011 which is 5 years after tender date.

This factor is closely linked to first factor because it is based on the economic feasibility and project identification. It depends on how much developer invests versus how much it gets out of the project.

#3 EFFECTIVE TENDER EVALUATION PROCESS

Example 3, Country: Turkey

Taking a look on evolvement of tender evaluation process in aviation sector in Turkey is extremely impressive: starting with Antalya and going on with Istanbul, Ankara, Izmir, and etc.

The first airport privatization in 1994 was the tender of BOT for Antalya Airport Terminal 1, prepared and implemented by the DHMİ.

In 1997 Istanbul Atatürk airport project was tendered and then in 2004 several airports were tendered: Ankara, Izmir, Antalya Terminal 2, Dalaman, and in 2006 Bodrum airport was tendered.

These experiences maturated the tender process and criteria for airport sector. Existing processes are fair, open, transparent and good model for airport privatization using BOT contracts. Airport privatization was the most successful model comparing with electricity sector, or highway privatization in Turkey.

#4 TECHNICAL FEASIBILITY OF PROJECT

Example 4, Country: Turkey, City: Antalya

Antalya airport has two international terminals. There were two different BOT projects in one airport and two terminals were being operated by two different groups.

After launching second terminal there was a critical problem regarding airport systems like baggage handling, CUTE, flight information system and etc. Because terminal 1 and terminal 2 had different systems, different data network were not integrated together.
It is possible to say that the second phase was not technically feasible enough because of lack of integration.

In second international terminal what happened is notable. When new terminal opened, because of lack of integration between systems of two terminals, a check-in procedure which usually takes 2~2.5 hours took 5-6 hours. Also baggage handling system had serious problems. When a passenger checks-in in a CUTE system, there is an integration

between several systems so if there is any problem in a system the whole process will be affected and it is hard to check-in in time.

These problems caused terminal closing for one week to solve the problem.

In airports with two or three international terminals, in development stages technical feasibility of projects are very critical and they must be integrated with previous phases.

#5 FEASIBILITY OF QUALITY, SAFETY AND ENVIRONMENTAL REQUIREMENTS

Example 5, Country: Tunisia, Project: Enfidha-Hammame Airport

Environmental and quality requirements sometimes do not come from project or government themselves but come from lenders. For example, International Finance Corporation (IFC) a member of the World Bank Group that finances and provides advice for private sector ventures and projects in developing countries, for financing a BOT airport project in Tunisia had some social and environmental policies which had to be fulfilled. IFC was extremely sensitive if they have been moved properly and settled in an excellent condition, they also concerned if their land had been purchased with a fair value and also if their new residential houses meets minimum quality requirements. Also it was important for IFC to assure that all of them will be employed in their new places.

Developer was obliged by IFC to provide monthly reports about each person who was living there. (The amount of people was not so much and was around 50 people).

#6 REASONABLE AND EFFECTIVE RISK ALLOCATION

Example 6, Country: Saudi Arabia, Project: Medina BOT Airport

This factor can be considered from two aspects: risk allocation between government and developer, and also inside the consortium.

Especially when entering new tender, developer has difficulty in identifying risks. For example passenger traffic risk is extremely significant in BOT airport projects. The question is: Can any part of this risk be taken by government? Can government guarantee any portion of traffic?

In Medina BOT airport project the majority of passengers come during Hajj period but there is an existing Hajj terminal building in Jeddah which developer had concerns about and requested government to clarify this issue. It was mentioned by government that it will be 50-50 division of traffic between two airports but this is government's policy and is not 100% guaranteed. So developer while calculating its cash flow and return from revenue took this into account that this is unguaranteed risk.

Also in Turkey even the tender process is matured but still the concession agreements have their risks, as an example there are no termination payments. If the concession agreement is terminated

developer get nothing and normally this is not acceptable in standard project financing but in Turkey developers rely on good relations with the government, good relation with DHMİ that the DHMİ would not terminate the concession agreement until the due which have been approved by experience since 1997 which there was no problem in this regard.

#7 INTEGRATION AND STRONG CONSORTIUM STRUCTURE

Example 7, Country: Saudi Arabia, Project: Medina BOT Airport

Integration in consortium also means that the consortium should consist of different parties with different expertise to form a comprehensive structure. Having a strong local partner inside the consortium is always desired. For Medina airport project Turkish company which had construction and operation "know how" made a consortium with two local companies in Saudi Arabia which are financially very strong and have reputation in the host country.

#8 STRONG TECHNICAL AND MANAGERIAL CAPABILITIES OF CONTRACTOR

Example 8, Country: Turkey

Company B has its contractor as sister company. Istanbul project was constructed in 22 months only, in Izmir and Ankara projects the contractor finished both projects 1 year ahead. This means adding one

year additional operation of airport. These successes happened mostly because of strong technical and managerial capabilities of contractor. The same experience was observed in Company A which will be discussed deeply in Chapter 4.

#9 STRONG FINANCIAL STRUCTURE OF CONSORTIUM

In the next chapter two projects namely Dalaman and Aktau International Airports, with extremely detail information will be discussed especially for financial structure of projects.

#10 GOOD CONSORTIUM AND GOVERNMENT RELATIONSHIP AND COMMITMENT

Example 9, Country: Iran, Project: Imam Khomeini International Airport

The developer maintained good relationship with all governments it worked with. There was one exception: Iran Project. It was decided by Iranian government in 2004 to give operation right of new constructed international airport to the Turkish company along with the construction of the second terminal to the consortium of two Turkish and an Austrian company. But a few days before official opening date the company's officials were ordered to withdraw their personnel and equipment from the airport. This failure of good relationship with government together with low commitment of government to the singed memorandum of understanding caused a bad experience for the

company which was the only failure in foreign investment for the company.

#11 STABLE AND MATURE LEGAL AND ADMINISTRATIVE FRAMEWORK

Example 10, Country: Georgia

This very critical factor is one of the first factors which developers consider when entering a new tender.

Since BOT term was not well recognized in Georgia, some issues came up in the BOT airport projects there. The problem was because of not recognition of right for operation of airport as company's asset.

In some countries the term BOT changes to BTO which means after construction the whole facility's ownership transfers to the government and developer will have right of operation. In BOT projects during operation period developer can carry the facility as its asset in wealth sheets. But in BTO it is not possible and only "right to operate" may be considered as asset which is not a tangible asset.

It was very important for the developer to know that in Georgia the contract would be in that way: BTO not BOT.

#12 STABLE POLITICAL AND ECONOMIC SITUATION OF THE COUNTRY

Example 11, Country Saudi Arabia vs. Turkey

Saudi Arabia with its monarchy government is not attractive enough for BOT investors. The political situation of the country is

mostly depends on the King, hence projects are subject not to the mature legislation system but mostly on personal decisions. Comparing to Turkey that has matured legislation system and the political situation of the country has become much more stable than past. This subject will be discussed more in the next Chapter.

#13 AVAILABILITY OF ADEQUATE GOVERNMENT SUPPORT AND GUARANTEE

Example 12, Country: Turkey

Example 13, Country: Tunisia

This factor mostly depends on relationship between two parties: government and developer.

In Izmir and Ankara BOT projects there are passenger guarantees. In Istanbul and Gazipaşa there is no guarantee. This does not mean that the government is not supportive.

In terms of airport privatization, Turkish government is very supportive. While in Tunisia only looks supportive.

Guarantees are clear but being supportive needs some explanations. In Tunisia, a developer company was operating two airports: Monastir and Enfidha. First one is an existing and second is new built airport which construction began in 2007 and the airport was opened on 1 December 2009. Developer was about to transfer passengers from old airport to new built one. Transferring flights from an airport to another one needs support from aviation sector. There was no problem according to technical tasks but it needed government

support which was not showed supportive at all. This caused loss of lots of money for the developer.

3.5. Brief Discussion About Examples

The interviews and examples introduced by experts show validity and relevancy of CSFs. Decision makers who intend to invest on airport BOT projects shall benefit from studying these examples and consider them as Lessons Learned from similar project. Better description of CSFs can be understood by studying these examples. Experts believed that by considering CSFs in early stages of a BOT project they could have more successful project at the end. Also some new ideas were taken from the interviews. As an example, past BOT experience of host government was considered by different experts. This new term was considered in the checklist under description of two success factors:

1- Effective tender evaluation process

2- Stable and mature legal and administrative framework

The government with more experience in BOT usually has more effective tender evaluation process and more mature legal system.

In the next chapter it will be illustrated how this checklist can be used for one project and how different problems could be prevented by considering CSFs in early stages of the project.

CHAPTER 4

UTILISATION OF CSFS DURING FEASIBILITY STUDY OF BOT PROJECTS: CASES OF DALAMAN AND AKTAU AIRPORTS

In this chapter the decision support will be applied for two Airport BOT projects: Dalaman and Aktau international terminals projects. Firstly two projects and their characteristics will be introduced briefly and then each success factor will be discussed according to interviews conducted with experts from Developer Company of both projects.

4.1. Dalaman International Airport

4.1.1. Brief Information About Dalaman City and its International Airport

Dalaman is a district, as well as the central town of that district, situated on the southwestern coast of Turkey, in the Muğla Province. Figure 4.1.

The town of Dalaman is located in the coastal plain. Dalaman is known for its international airport which serves as a gateway to the tourists who visit this part of Turkey every year, heading especially to seaside resorts to the west and east of Dalaman such as Marmaris, Fethiye, Köyceğiz, Dalyan, Ölüdeniz and Hisarönü.

A state farm is present in Dalaman. Agriculture, particularly citrus fruits, plays an important role in the local economy, since it is

situated in a fertile plain at sea level. (http://southcoastofTurkey.com/dalaman-Turkey.shtml)

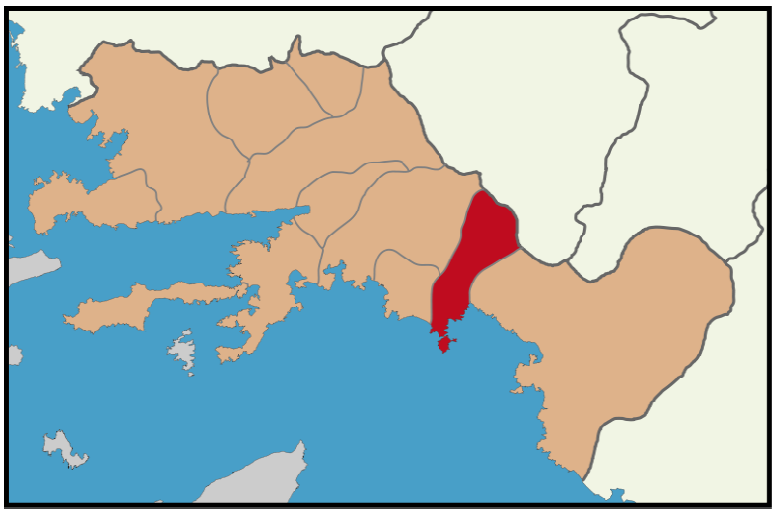

Figure 4.1. Location of Dalaman district within Muğla Province (Wikipedia)

Dalaman International Terminal project, an investment of about $150,000,000.00 is one of the most important projects in the aviation industry. There was an old existing terminal in the airport, but a new BOT project was introduced for building and operation of new international terminal building. Construction period of project was 23 months. Construction area details are as follows: Terminal Building: 149,823 m^2, Duty Free: 12,000 m^2, Food & Beverage: 3,000 m^2, Apron: 202,000 m^2, Taxiway: 3,000 m^2, Runway: 3,200 m^2, parking: 45,000

m^2. International Passengers Terminal with 149,000 m^2 of area has 10 million passenger capacities. The project was completed 8 months ahead of planned date and became the 3rd biggest airport in Turkey.

Dalaman Airport, meets the needs of the region that includes the most important tourism spots on the Turkish Riviera and has reached to a level at which the increasing numbers of planes and passengers of the region will be easily operated, in a country like Turkey demonstrating a tourism growth above the world standards. (http://www.atmairport.aero)

Figure 4.2. Dalaman International Airport (Google Earth)

The tender for this BOT project was held in 2004 by General Directorate of State Airports Authority (DHMİ) and the contract with the winner was signed in June 2004 initially for 77 months and 20 days of operation but furthermore it was increased with 20 months and 27 days more. The operation of international terminal was launched in 1st of July 2006.

4.2. Application of Checklist in Dalaman International Terminal Project

In one day meeting at city of Dalaman with experts from Concessionaire Company, after introducing the checklist, there were discussion about CFSs and the results are summarized as follow:

#1 APPROPRIATENESS OF PROJECT IDENTIFICATION

The Dalaman international terminal airport was identified well enough and according to the need. As mentioned above, one of the most important touristic areas of Turkey surrounds Dalaman city and the old terminal building was not enough to meet increasing needs of annual passengers. Hence, introducing a new project to fulfill this need was quite right and appropriate. But in some details of project the identification was not proper. The point is that government announced the whole terminal building in only one phase. Rather, it was possible to make a project in 2 or even 3 phases. Developer was committed to invest for the whole project. But as an example, there was a three floor building (shown in Figure 4.3.) which was built but was empty for long time and just recently, in 2010 first floor was occupied. If negotiations

between government and developer were conducted better and deeper studies were made, it could be done as phase two and expansion of terminal building and the huge amount of money for that could be spent three years later.

Figure 4.3. Three Floor Building Which Was Left Empty For 3 Years

#2 THOROUGH AND REALISTIC COSTS-BENEFIT ASSESSMENT

Generally benefits and revenue in airport BOT projects have different sources. One of them is fee per passenger which the rough amount without factors was $15 per passenger for Dalaman International Terminal. Initial predictions for annual passengers were not accurate. The airport opened in 2006, but the predicted amount of passengers for 2005 was met in 2010. Thanks to well operation and experts and experienced operation teams, expenses became less during these years and the airport was profitable. Since there was an existing terminal, 20 years of real data was available for this airport not like Afyun Zafer project which was defined in a city without any existing airport.

The point is "Passengers' profile is very important". The main reason of trips of international passengers to Dalaman is tourism. Even the airport has been profitable yet but it could have much more benefits if the prediction was more accurate.

#3 EFFECTIVE TENDER EVALUATION PROCESS

Since Dalaman Airport Project was brought to tender after several airport BOT projects, the authority had became mature and experienced enough so the tender was held without problem and successful.

For this tender which 4 companies attended, DHMİ fixed total amount of investment and construction duration (2 years) and the winner would be the company with lesser amount of operation period.

Also if winner can finish project earlier he can start operation to gain more revenue.

#4 TECHNICAL FEASIBILITY OF PROJECT

In Dalaman international terminal project, two experiences relating to technical issues will be mentioned: one failure and one success experience.

Figure 4.4. Soil Improvements Activities at Dalaman Airport.

The failure was regarding soil investigation. The drawings of the project in the tender phase were preliminary and not in detail. In the initiating phase of project, the developer had not investigated enough about the soil investigation so there had not been enough information.

Because of this lack of information unexpected level of water showed up during the construction phase. The airport is located very near to sea so water level is high. The necessary soil improvements' cost and time was not predicted by the developer and they based construction plan on the initial drawings submitted by DHMİ therefore some improvements like stone columns[1] had to be executed (Figure 4.4.). This problem increased cost of construction and also took an extra 6-7 months to be finished. As a result concrete works directly were affected and could not be started till this soil improvement job was done. Developer's failure was the deep soil investigation at tendering stage which was not good enough and tasks like accurate site visits and soil tests were not implemented.

The success was regarding airport systems. One of the most critical items of each airport is its systems, which means facility systems like: baggage handling, CUTE (Common Use Terminal Equipment), information display, check in desks, and etc.

As mentioned in examples section, a problem occurred in Antalya airport's operational tasks. In Dalaman international terminal project, the developer did not experience such a problem because of two main reasons:

1. The employed team in Dalaman airport was expert and many of the key personnel had experience Antalya's problem.

2. Governmental authorities had became more experienced and did not interrupt the developer's job, instead gave the developer more

[1] Stone columns made from gravel mostly for purpose of strengthening the soil and also because of drain purposes

field to play and did not force to use a specific system. The logic behind it was clear: You, the developer, are going to operate the terminal therefore go on and select your systems which best match you but you must fulfill the defined requirements!

DHMİ did not have exact specifications for systems. They had general requirements, such as the system that the developer is going to use must have been used satisfactorily for example for 5 years in an international terminal. This fact allowed the developer to freely select systems which best work according to operator experience.

Also it must be mentioned that the architectural design was unique for Dalaman and consisted of special wood elements imported specially from Africa. This increased execution and maintenance costs together with general cleaning tasks which have become more expensive because of this special design. The developer did not engaged with design tasks and the architectural design was made in advance. Also the ceramic size was not usual and was unique which as well increased construction and operational costs.

For electrical equipment the same story is valid. Special lighting system together with exposed ceiling beams increased construction costs and also caused difficulties for maintenance and operation.

The main point here is the way that DHMİ holds tenders. At the very beginning DHMİ announced that the terminal with that size and specifications is needed. The architects give their offer and the authority selects one final proposal and the BOT tender will be held. So the developer has no chance of changing design details. And in cases

like Dalaman they are forced to accept the fact of dealing with special wood from Africa and special concrete design (Figures 4.5. and 4.6.).

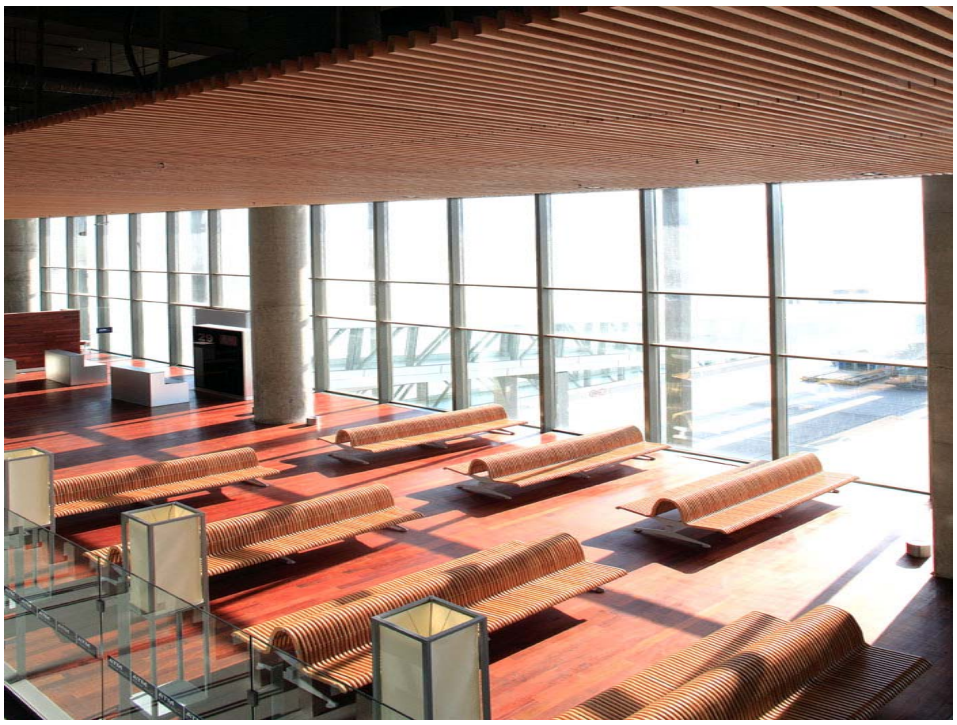

Figure 4.5. Special Natural Wooden Elements

#5 FEASIBILITY OF QUALITY, SAFETY AND ENVIRONMENTAL REQUIREMENTS

There is a manual which DHMİ supplies and the winner of the project, before the opening, must follow this manual and fulfill the requirements. All of the safety and security issues are mentioned in that

manual: Terminal Operational Manual (TOM). All airports in Turkey should follow this manual. Teams on behalf of DHMİ consisting of 8-10 persons meet every month to check the proper adherence to these instructions.

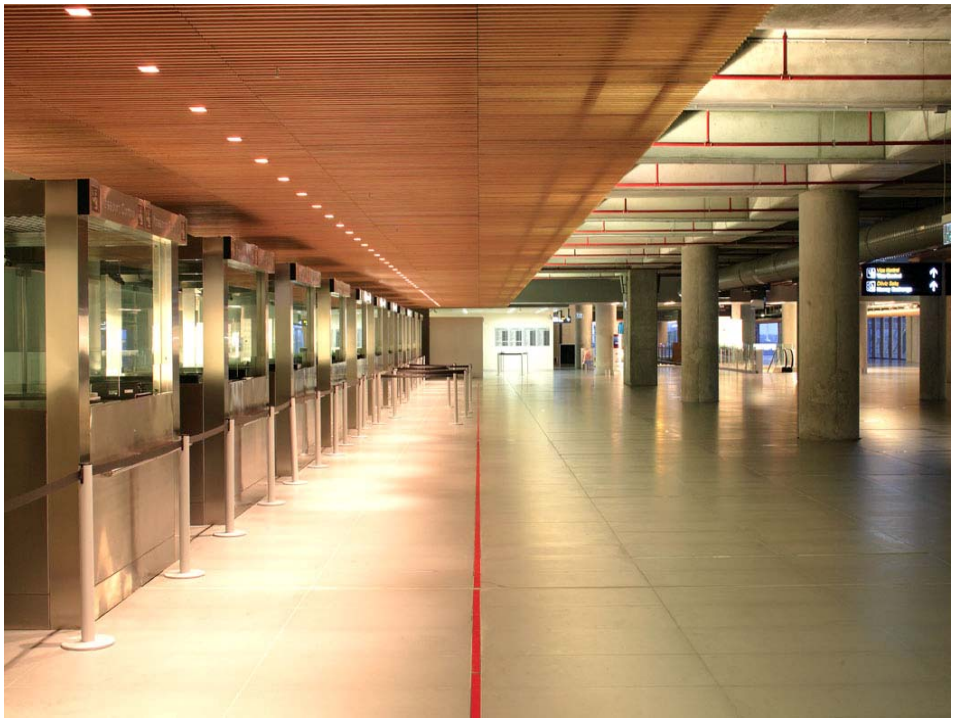

Figure 4.6. Exposed Concrete and Wooden Elements

Dalaman International Terminal received a Green Airport certificate from the Directorate General of Civil Aviation (SHGM). There are some specific rules to be followed to maintain this title.

DHMİ will not pay money or more operational time for extra work that the developers do.

#6 REASONABLE AND EFFECTIVE RISK ALLOCATION

For selecting systems as mentioned before, DHMİ gives the authority to the developer and also the risk of proper operation will be on the developer's shoulders.

Since the project is in a touristic area the risk of annual passenger is high so in order to mitigate this risk the government gave minimum annual passenger amount guarantee which started at 1,000,000 passengers at the beginning. Just as an example, at the time of flu the amount of tourists decreased sharply.

#7 INTEGRATION AND STRONG CONSORTIUM STRUCTURE

For this project, consortium structure was good enough to have a successful project.

In airport BOT projects usually there are two main groups: Technical and Operational and one of the key factors of success were integration of them two. The problem is that construction group is not well informed about operational issues and operation team does not involve in construction process formally and they will be involved later on. If the process would be such that after completion of all construction and technical works, operational team is involved, there would be a problem and it is a failure. But if there is integration like in

Dalaman's case the project would be successful. In Dalaman project the operational team worked on the construction site and was involved with construction tasks. They should be involved in selection process for airport systems and this is another key success factor of Dalaman airport.

The company defined target opening date as the first of April, 2006. Installation of systems was being done from February to the end of March. In April major airport systems were installed and only small lighting systems were not installed. So the operation team had 2 months (May and June) to try the system rather than normal testing. Training of the operational team started 5 months before opening the terminal. Therefore they used the systems and became familiar with them and because of this good integration between construction and operational teams, the airport systems worked well and according to passengers' feedbacks, at the first day of terminal operation it looked like a terminal which had been under operation for several years.

It must be mentioned that the terminal was opened in 1st of July 2006 which was 8 months earlier than legal time (what was agreed in the contract).

In many cases operational team and technical and constructional team are not well integrated. But in this case, excellent integration and communication lead to the success of project.

#8 STRONG TECHNICAL AND MANAGERIAL CAPABILITIES OF CONTRACTOR

In this project construction contractor was strong enough to finish all construction works 8 months earlier and as a result Project Company could start getting revenue 8 months earlier. There were three contractors working for the project but mutual trust between them facilitated the works and reduced conflictions.

Because of that trust, decisions were made fast and without losing time. Managerial capabilities were strong and also considering technical issues, the contractor had a good past experience.

#9 STRONG FINANCIAL STRUCTURE OF CONSORTIUM

At the beginning there was one bank from Germany, HypoVereins Bank, HVB. The bank was focusing on the commercial part of projects and gave a lot of finance to different projects in Turkey and they were familiar with BOT environment in Turkey. After a while two German banks made syndication: HVB and DVB bank. DVB bank was a bank focusing on transportation projects only and is specialist in international transport finance.

It was required to have an onshore local bank in Turkey to monitor project and check procedures and cash flows. So, Vakif Bank became the onshore bank. Finally the banks consortium formed with shares percentages as follow:

34% Vakif Bank, 33% DVB Bank, and 33% HVB Bank.

The financial structure of this project was strong and there was a strong bank fund for this project and risks of the project was minimized. Because of Turkey's situation and experience of BOT

projects, German banks raised fund without a big problem. It was around 11 different agreements for this project. The agreements were very detailed and they comprehensively consider every part of project.

#10 GOOD CONSORTIUM AND GOVERNMENT RELATIONSHIP AND COMMITMENT

In this project both parties were motivated and committed to finish the project. The nature of BOT projects motivates the developer to finish the project as soon as possible. The government is also eager to finish the project since it is needed and the government wants to show the public that it has finished a high quality airport quickly.

The relationship between two parties was very good. The nature of BOT makes the relationship based on trust since the project is defined according to need and the government trusts the developer to build a facility and to operate it. In Turkish BOT model, developer is allowed to work more freely based on the trust in DHMİ.

There was a problem in this regard which must be mentioned; the DHMİ put the project into the tender without negotiation with other governmental agencies. It is not a subject of relationship between two parties but of the relationship between different governmental agencies involved in a project; for instance police authority, custom authority and etc. after finishing construction phase and start of the operation of the terminal, the security authority mentioned that the airport is not secured enough and also police officers consider the passport check points not matching with our requirements. This is because the lack of

cooperation and communication between governmental authorities in the design stage.

As an example after starting the operation the security authorities increased the number of security cameras by 30% though the number was around 220 cameras at the beginning. It caused cost for the developer which was not foreseen in his plan.

It is strongly recommended that after finalizing the architectural design of an airport, cooperation between DHMİ and other agencies must be started. Authorities like custom, police, security and etc. should involve in detailed design of project to provide their comments in design stage rather than after commencing operation. The lack of communication and collaboration cause increase in operational costs which were not predicted before. It can be said that integration between governmental agencies is also critical.

#11 STABLE AND MATURE LEGAL AND ADMINISTRATIVE FRAMEWORK

As mentioned before since Dalaman airport came into tender after a few previous Airport BOT projects the legal system and authority became more mature. Hence several problems were predicted and the law was able to mitigate the problems. This helped a lot and had a key role in the success of project.

But the package also had some missing points such as cooperation between governmental agencies before bringing the project to the tender.“aviation sector” itself helps the law to be more stable,

since in this sector international laws are applied and they are not easily changed.

There is a point which must be mentioned here. In Turkey there are two aviation authorities: Directorate General of Civil Aviation (SHGM) and General Directorate of State Airports Authority (DHMİ) which may result in conflicts and strong integration between them is not very easy.

#12 STABLE POLITICAL AND ECONOMIC SITUATION OF THE COUNTRY

For the first time in almost two decades, in 2002 AKP ended multi party governments by forming a single-party government. This helped to stabilize political and economic situation of the country. The Dalaman airport was tendered in 2004 and it was another key point for this BOT project to be successful.

International stability is also critical and it should be mentioned as a special case. Dalaman airport lost Israeli passengers after political conflicts between Turkey and Israel starting with “one minute” story in Davos 2009.

There were 50000 - 60000 passengers from Israel every year but all these flights were cancelled and this number changed to zero. Even though the same political issue increased Arab passengers but caused the loss of Israeli passengers.

#13 AVAILABILITY OF ADEQUATE GOVERNMENT SUPPORT AND GUARANTEE

For this airport there is a guarantee for 1,000,000 passengers annually. There is also good support from the government. In some cases the government supports and approves requests of the developer to increase commercial areas not fully but in an acceptable amount which developers seemed to be satisfied.

At the end of interview, interviewees found this checklist extremely useful in summarizing characteristics of BOT projects and its success factors. The checklist will be more helpful if decision makers consider it at early stage of project and to better studying lessons learned from cases which are presented as follows:

4.3. Lessons Learned from Dalaman International Terminal Project

- Considering the rate of increase of passengers, it is suggested to define a project in two or three phases. If the terminal is designed to serve 10 million passengers annually, it is not required to build a complete terminal and launch it in a year which the need is 3 million.
- Passengers' profile is very important.
- Failure in soil investigation in initial stage of project may cause unpredicted costs and time.

- Employing inexperienced personnel for operation of the airport can seriously affect costs and cause operational mistakes.
- Less interruption from governmental authorities generally causes more success in BOT projects especially when the developer is adequately experienced.
- Communication between operational and constructional teams is very important and "trying" systems rather than normal testing, helps avoiding problems in the operation phase of the project.
- Integration between governmental agencies is critical. Lack of this integration causes more costs and problems for operation period.

4.4. Aktau International Airport

4.4.1. General information about Kazakhstan

Kazakhstan is a country that is ranked as the ninth largest country in the world as well as the world's largest landlocked country; it has a territory of 2,727,300 km^2 (greater than Western Europe). It is bordered by Russia, Kyrgyzstan, Turkmenistan, Uzbekistan and China. This country also borders on a significant part of the Caspian Sea (Figure 4.7.).

Figure 4.7. Map of Kazakhstan and location of Aktau

Vast in size, the land in Kazakhstan is very diverse in types of terrain: flatlands, steppes, taigas, rock-canyons, hills, deltas, mountains, snow-capped mountains, and deserts. Kazakhstan has the 62nd largest population in the world, with a population density of less than 6 people per square kilometer (15 per sq. mi.).

4.4.2. Location of Project: AKTAU

Aktau city is located in southwestern Kazakhstan on the Caspian Sea and is the country's largest port facility.

Aktau, the country's major city on the Caspian, is at the vanguard of the economic expansion. With its Caspian Sea setting providing a considerable natural amenity; Aktau is in the position to capitalize on this geographic location as a tourist destination.

The city is also a major port providing commerce and exchange with the west. With the growth of oil and gas production and the nationalization of this economy; Aktau can become a central place of business and exchange for these industries and can experience significant economic and population growth (both internal and foreign) in the coming years.

4.4.3. Brief information about the project

There were two projects: 1. Terminal building construction 2. Runway, apron, and taxiway construction.

Which were two different projects but with the same contractor. The first contract was with the contractor and developer and the second one was between the government and the contractor.

4.4.4. New Aktau City Project

The new urban center, called Aktau-City, will be an energy hub and a center of trade, industry and leisure. Aktau- City set to become a bright star in the country's urban expansion - will also be home to almost one million people. This project made Aktau airport more feasible since it would provide more passengers for the airport.

Figure 4.8. Aktau city project

The new city will be located near the seaport of Aktau, where it will occupy an area of 4,590 hectares. A consortium of Persian Gulf companies which specializes in building cities in developing countries has been contracted to build Aktau City. The future city- which could equally well be described as the city of the future - will be home to some 950,000 people, who will live in new accommodation ranging from budget housing to luxury homes. Architects will be making the most of what nature can offer: the sea is expected to be visible from all buildings - offices and residences. Aktau-City's business districts will offer excellent facilities for negotiations and for signing contracts that will benefit the whole country.

A total of 38 billion dollars is to be spent on building this new urban center, including funding for maintenance of the city and its

social infrastructure. Project developer Kazemir Aktau Development Ltd will build energy, water and gas networks, schools, hospitals and other social facilities.

Aktau-City's foundation stone was laid by the president of Kazakhstan, Nursultan Nazarbayev, on 11 September 2007. Construction had begun but stopped because of the financial crisis in Kazakhstan.

4.4.5. Long – Term Strategy of Civil Aviation Branch Development

Mangistauskaya Oblast symbolizes the dynamically developing part and industrial region of the Republic of Kazakhstan. The region has strategic value, both for the republic, and as a whole in system of the Caspian region.

Today the Caspian region is one of the largest centers in the world to produce hydrocarbons which attracts many countries of the world. The region plays a significant role not only with its vast oil fields but also with opening opportunities for development of large industrial services and processing raw materials.

The role of Mangistauskaya oblast in the economy of the republic sharply grows, as the region has powerful investment potential with trans-boundary projects.

The analysis of world experience shows that in the majority of less developed countries, frontier regions are more likely to aim at international trade. Also establishing a powerful infrastructure of the international transit corridors in this territory of the region such as

seaports, airports and large railway junctions greatly helps its development.

The major factors determining the growth of the volume of passenger traffic in Aktau include:

- Favorable economic situation in Mangistau district and the increase in transport and transit potential in the region;

- High investment appeal in Mangistauskaya oblast with favorable economic and political conditions; having rich stocks of raw material, especially large oil and gas fields;

- Significant transit potential in Mangistauskaya oblast located on crossing of international transport corridors MTK "North - South", and transcontinental transportations of Europe - Asia,

- Planned realization of projects in frameworks integrated with the Aktau City Project.

Within the framework of the given project the further strategy of development of passenger transportations through the International airport of Aktau includes:

1. Development of the passenger terminal of Aktau as a strategic transport unit on crossing of the international transport corridors.

Creation of the advanced transport infrastructure will give Mangistauskaya oblast an opportunity of inclusion in world economic space. This is promoted by expansion of conditions of economic cooperation with Iran, the countries of Europe, the Near East and India, the CIS, China, and also formation of positive shifts for development of the general economic space between Kazakhstan and Russia.

Thus, the economic situation of Mangistauskaya oblast, and also a developing political and economic situation in the world (economic growth of the countries of Asia especially China, deficiency raw and power resources, increase in volumes of trade between the countries of Europe and Asia) predetermines the strategic position of Mangistauskaya oblast.

2. Development of the passenger terminal of Aktau as a strategic operator on service of passenger transportations within the framework of the project "Ground - Sea - Sky ".

With a view of realization of investment potential of the area in 2006 - 2007 by the Government of Mangistauskaya oblast the integrated investment project "Ground - Sea - Sky" which basic purpose is diversification and complex development of various branches of economy of area as one of the basic conditions of effective and dynamical development of area further is developed.

The integrated investment project "Ground - Sea - Sky" unites in itself the following complex projects:

- Expansion of territory SEZ (Sea Port Aktau);
- Construction of seaport and working settlement Kuryk;
- Development of the transport infrastructure by reconstruction of Aktau International Airport and construction of railways in the territory;
- Development of the atomic power station in Aktau;
- Development of civil and housing construction in Aktau
- Creation of the Caspian Technological University
- Development of tourism
- Realization of the projects will create preconditions for increase in volume of passenger traffic and development of transit potential in international transport corridors.

3. Development of the passenger terminal of Aktau as strategic infrastructural object of Aktau

Aktau has a special geopolitical condition for the Republic of Kazakhstan located on the coast of the Caspian Sea.

Aktau represents a modern city with advanced infrastructure (transport, power, engineering, and social), located in an extensive oil and gas extraction zone.

Also Aktau is a frontier city which has all preconditions for creation on its basis of the important unit in the Euroasian system of commodity and technological exchanges especially with its port. Transport Strategy of Republic Kazakhstan of Aktau is recognized as

"the Western Gate" of Kazakhstan, representing the important link on crossing of transport corridors TRASEKA and the North -South.

4.4.6. Executive Summary

The developer which is an International Airport Construction Investment and Management Company has been awarded the Build - Operate - Transfer Concession for Aktau City International Airport New Passenger Terminal and Trust Management of Aktau City Airport as a whole by Mangustai Oblast Finance Department ("Akimat") after two competitive tender processes.

Within the framework of the Development program of Civil Aviation for 2006-2008, Aktau City Airport is included in the list of the facilities that are given to concession in the mid-term in accordance with the state programs and the Industrial Renovation and Development Strategy of Kazakhstan Republic for 2003-2015, that is approved by the President of Kazakhstan with Instruction dated 17th of May 2003 and with the number 1096, by Ministry of Transport and Communication.

In this regard Mangustai Oblast Finance Department has called two tenders in order to realize this project.

1- Construction and Operation of New Passenger Terminal of the International Aktau Airport

2- Trust Management of 100% shares of Aktau International Airport Joint Stock Company

4.4.7. Project Description

The Republic of Kazakhstan's Mangustai Oblast Finance Department ("Akimat") has initiated and successfully completed the

Build, Operate and Transfer ("BOT") Concession tender for the construction, operation and maintenance of the New Passenger Terminal of the International Aktau Airport on 20 August 2007. The Concession Agreement was signed after negotiations with Akimat on 10 December 2007 and registered to the State Registry in accordance with the Kazakh Legislations on 29 December 2007. The Concession Agreement is Effective as of this date. The land transfer was completed on 10 January 2007. The construction of the new passenger terminal has been completed and is being operated now.

4.4.8. Key Project Highlights

Project highlights are shown in Table 4.1.

4.4.9. Project Scope

The project includes the construction of a New Passenger Terminal at Aktau International Airport on the land allocated by Akimat and its operation for 30 years.

The developer has provided mechanical, electrical and safety systems, and installed the necessary equipments for the safe operation of the Terminal. Design, material and construction of all premises and facilities meet the internationally accepted standards by appealing to passengers and all other users.

Table 4.1. Key Project Highlights

Project Object	Aktau International Airport New Passenger Terminal
Project Purpose	Construction and Operation of Aktau International Airport New Passenger Terminal in compliance with the Strategy of industrial-innovation development of the Republic of Kazakhstan for 2003-2015, approved
Project Place	130000, Republic of Kazakhstan, Mangustai Area, Tupkarganskiy District, 23 km from Aktau 130000,
Total Project Amount	31,000,000 USD
Term of the Agreement	30 years
Operation Period	30 years
Start of Construction	10 January 2008
Completion Date of	11 September 2009
Type of Construction Contract	(Design and Build) EPC Contract

The developer has started to operate the new Terminal recently and will perform periodical maintenance and repairs during the operation period and transfer to Akimat at the end of concession period at no cost and in good working condition. The total amount of the

investment for the Project including the total cost of construction of the terminal building, procurement of the electrical and electronic systems and their installation is approximately 31,000,000 USD

4.4.10. Revenue Sources

The developer is responsible for the collection of all the revenue items. Two main revenue sources for the Project are derived from the aviation and the non-aviation services.

In addition to the departing passenger service fees, the developer provides additional services in the terminal to airlines and passengers that form an important portion of the revenue stream. The terminal generates aviation revenues from departing passengers, passenger boarding bridge services, power and water usage of aircrafts, and check-in desk services.

The non-aviation revenues earned from the operation of the terminal include duty-free, food and beverage sales, advertisement boards, VIP/CIP lounges, parking lot, baggage handling, office rents, transportation services for passengers (buses and shuttles) and any kind of revenues which can be generated as provision of any other commercial activities not prohibited by the Legislation of the Republic of Kazakhstan ('RK') and not in contradiction with the Concession Agreement.

The revenues include mainly the items stated as shown in Table 4.2.

Table 4.2. Revenue Sources and Explanations

REVENUE ITEM	EXPLANATION
Passenger Service Revenues	Include service revenues collected from Airline companies according to departing passenger numbers.
Add-on Service Revenues	Include; • aviation services, such as bridge services, power and water usage of aircrafts, and check-in desk services • non-aviation services, such as duty-free shops, food and beverage sales, flight ticket sales counters, rental company desks, advertisement boards, VIP/CIP lounges, parking lot, baggage handling, office rents, and etc. • any other commercial activities not prohibited by the Legislation of the RK and not in contradiction with the Concession Agreement
Utility Sales Revenues	Include revenues from the sales of Utility Services to the tenants within the Airport or neighbors around such as electricity, water, heating and etc.

4.5. Application of Checklist in Aktau Dalaman International Terminal project

#1 APPROPRIATENESS OF PROJECT IDENTIFICATION

Kazakhstan has a huge area and with an area of 2.7 million square kilometers (1.05 million sq. mi), the country is the ninth-largest country and the largest landlocked country in the world. It has 14 provinces. It is approximately 3 times bigger than Turkey. There is a long distance between the provinces and since high-quality highways in Kazakhstan are not available air transportation must be employed. Therefore many of the provinces have airports but other provinces must use highways.

Mangystau is the province and Aktau is its capital. There was an old airport and the total passenger number was 200,000 annually. The neqw international terminal project which is target for this study was introduced to serve 5,000,000 people annually. Considering the fact that air transportation is a need this project was identified appropriately.

Also there were some other projects which made the airport more feasible. As previously mentioned, Aktau new city had been introduced to settle near 1 million people. Even during the construction of that city huge amount of air transportation would be needed.

Considering these needs this project as the first BOT project in Kazakhstan was introduced.

#2 THOROUGH AND REALISTIC COSTS-BENEFIT ASSESSMENT

According to feasibility studies, realistic costs-benefits were assessed. There is a point which may not be considered as a developer's failure but was a failure of the Aktau new city project. In feasibility studies the project had a positive effect on airport revenue but because of financial crisis it was stopped and funds did not rise. But even after the stop of that project, it is estimated that Aktau international airport will cover its costs within 7-8 year while the total operation period is 30 years.

#3 EFFECTIVE TENDER EVALUATION PROCESS

The decisive factor for this tender was a high investment amount with a short operation period. There were three companies attending this tender. This tender was not so competitive. In tender stage the government did not find local investor so they called for foreign investors.

The tender had some items which was hard to be fulfilled and thus the competition was not high. As an example the government asked for job completion certificate of airport with total 5,000,000 passengers capacity per year.

The reason for this fact may be that this project was the first BOT project in Kazakhstan and the authorities experienced the first tender in this regard.

#4 TECHNICAL FEASIBILITY OF PROJECT

122 trailers containing material from Turkey were brought to Aktau. More than 90% of the material was from Turkey. The finished terminal building won 3 awards. The façade of that terminal building was from ALUCOBOND materials bought from Germany which is an aluminum sheets similar to sandwich panels and was employed in 40% of the façade. The material had an international certificate for being fire proof. CIS countries live under the pressure of SSR; they have the system existing from the Soviet time. If the material is OK with those manuals and instructions they are OK, otherwise even if they have international certificates, they are not approved. The developer paid a lot of money for this material but it was not accepted. This was because of a fire in Astana during the construction of Aktau, and since the material were similar to this one the government did not accept it. Therefore they did not give permission of operation and the developer was forced to remove it and to use aluminum materials without elastic materials.

Also there were problems regarding airport systems. The developer selected international brands but there were no distributors and agents in Kazakhstan which caused difficulties.

For airport systems, because of the past experience of Russia and the Soviet, the local companies were not familiar with the systems so it was impossible to find firms who knew the job and whom were able to understand the systems. They were only aware of their systems. The same problems were valid during operation. During installation they

took lots of supervisors directly from Turkey because of the lack of experts in the local market.

Another issue which intensifies the problem was a clause in the contract which restricted the developer and does not allow him to resign any existing staff and employees. Therefore the developer was forced to work with force men who are not familiar with the issue. Considering local employees and firms is very important. If the same airport with the same materials and systems had been built in Germany or Turkey, such a problem would never occur. The developer still suffers from lack of local spare parts. For very small parts and with simple problems, it is not possible to solve the issue locally and it is a need for the part to be sent from Turkey or other countries.

#5 FEASIBILITY OF QUALITY, SAFETY AND ENVIRONMENTAL REQUIREMENTS

Regarding environmental issues there is a governmental department which directly deals with this issue.

There are two important issues which must be considered here:

First, there is a nuclear plant in Aktau which is not working now. Because of that plant there is no green land in Aktau. It is hard to find trees and grass areas.

Second, there are uranium mine facilities in Aktau. Because of these two facts after installation of systems in the terminal, the developer was asked to install special radiation check point facilities at terminal entrances.

But generally they were not very significant problems regarding the environmental requirements and only international standards were asked to be followed.

There is a point here, the manuals and instructions are remained from the SSR time and hence they trust whatever they have in their hand. The logic was "government's documents are perfect and everything which is matching it is OK!"

There is one important fact which should be mentioned. In the developer's feasibility studies, it was supposed that the asphalt will be produced at site and with their equipments. In the construction phase, the developer transported an asphalt plant with 28 trailers and installed near the terminal building. But the government did not give permission to the developer to use the plant even though it cost more than 2,000,000 USD. The reason was that the location of the plant was too close to the runway and the steam of the plant will reduce the view of planes' pilots and that would violate safety.

#6 REASONABLE AND EFFECTIVE RISK ALLOCATION

The government did not take any risk and put all risk on the developer's shoulder. As mentioned previously there were two contracts: Terminal Building and PAT (Runway, Apron, and Taxiway). For the first, the developer took all risks but for the second, the government was engaged because of monitoring the construction and the taxiway. Since if it is not constructed according to international

rules and regulations, airlines will not send their planes to land in the airport and civil aviation will face problems.

The responsibility of the developer is within terminal buildings and passenger boarding bridges and when planes leave the passenger bridge and taxiway and enter the runway, all risks are taken by civil aviation department.

The developer was aware of this fact in the tendering stage.

#7 INTEGRATION AND STRONG CONSORTIUM STRUCTURE

The consortium for this project is consisting of two companies with 40% and 60% shares. Both parties are Turkish companies and the owner of 40% is registered in Kazakhstan and had been active there prior to this project. Because of other experiences and since the two companies had worked together previously there was good integration inside the consortium.

There was another problem which may be considered as being uncoordinated but was not inside the consortium. There were existing operational teams consisting of Russian and Kazakhstani people and according to law it is forbidden to fire existing team members. At first, the existing team did not accept that a foreign team coming from Turkey and operating the terminal building as well. But after they saw the strength of the developer they started accepting them. At the beginning it was a problem and it took time to create integration between the existing team and the foreign team.

The main problem was that during the construction phase they did not observe the details of installation and have not became familiar with systems being installed which were new and modern ones and so when operation started problems came up.

To summarize, the integration inside consortium itself was quite well but operation processes suffered from lack of integration between existing teams and new coming ones.

#8 STRONG TECHNICAL AND MANAGERIAL CAPABILITIES OF CONTRACTOR

The contractor in this project was the same as the Dalaman international terminal project, but the fact that a Turkish contractor wanted to construct in a foreign country lead to some problems which prevented the contractor from using all its capabilities. For example the contractor could not take all the machinery needed for construction and bring them to site and it was forced to hire them from the local market which was very expensive. In some cases the rate was so high that the one month rental price in Kazakhstan was close to the price of buying a new machine in Turkey.

#9 STRONG FINANCIAL STRUCTURE OF CONSORTIUM

The initial plan was to obtain 70% of the investment amount from banks and 30% to be provided by the developer as equity. But since this project was conducted in a special time period which financial crisis occurred in Kazakhstan things did not go as predicted and so local

banks could not raise money for the project. Also Turkish banks could not give loan, not because of the project but because of the country risk, Kazakhstan. So the investor was forced to invest for both terminal building and PAT projects from its pocket, and this caused some difficulties. In Kazakhstan the crisis occurred after the project started in February 2009. The first project finished but the second project faced financial problems. The developer was forced to raise all funds from its pocket for the second project as well.

The financial structure of consortium was good but not strong enough because most of the investment capital was planned to be raised by banks and also such a crisis was not predicted.

Both main two parties of consortium were engaged with other projects as well so they had restrictions to focus all their strength on Aktau project.

#10 GOOD CONSORTIUM AND GOVERNMENT RELATIONSHIP AND COMMITMENT

There was a good relationship between the developer and the government which is still continuing. The government was supportive and helping in different issues such as financial or operational and construction. Because the government was in need of a modern airport, runway, apron and taxiway, they committed to finishing the project properly and supporting the developer in succeeding in the project. There is a very good relationship between the two parties too. The

developer's official branch manager is working like the assistant of the governor there.

#11 STABLE AND MATURE LEGAL AND ADMINISTRATIVE FRAMEWORK

As mentioned before, there is no stable and mature legal framework in Kazakhstan. They got those rules directly from the Soviet Socialist Republic (SSR) and after that, since December 1991 which Kazakhstan became independent from SSR, they tried to settle a new legislation system but since it was a new born country, the established legislation system was not mature and it was subject of change in a very short period of time. This fact made a lot of risks for construction projects and the developer of this project lost a lot of money because of an unstable legal system.

As an example regarding the tax of building, change of law caused a loss for the developer. When the contract was signed, according to law tax of building should be paid by the building's owner. But after a short time the law changed and said that consignee (developer) must pay tax not consigner (government). The amount was not small and 1.5 % of the whole structure of terminal building and other investments which was around 31 million dollars must be paid annually as tax. Even though there is a decrease every year and after 20 years it will equal to zero but it was still a large sum.

Another important example was regarding rules and regulations of foreign workers. At first it was announced that the company can

bring 150 workers. After the developer applied for workers and followed regulations through related authorities and finalized everything, just before calling workers to Kazakhstan, rules changed. The government said in order to hire foreign workers in the country they must have some more competency and documents such as managerial staff developer must submit approved diploma and etc which were not asked for at the beginning. Such problems occurred for managers as well even during operation and it caused serious problems for the developer.

#12 STABLE POLITICAL AND ECONOMIC SITUATION OF THE COUNTRY

The country is republic but since 1992 the president has not been changed, and is still Nursultan Nazarbayev. Prime minister is not powerful and everything almost is in president's hand. From this point of view the political situation of the country is stable and it seems there will not be any change till the president's death.

But the economic situation of the country is not so stable. The country has a big amount of debt to China.

Despite the strong overall economic trends in Kazakhstan, a spiral of unsustainable growth in commercial lending and foreign borrowing in 2005 -2007 set the stage for difficulties in the financial and construction sectors. Since mid-2007, problems in the global financial markets blocked local banks' access to cheap external financing. (http://www.worldbank.org.kz)

#13 AVAILABILITY OF ADEQUATE GOVERNMENT SUPPORT AND GUARANTEE

In Aktau there is no passenger guarantee, but there is another kind of guarantee which ensures that during the operation period (30 years) no construction company will construct an airport in the whole region of Mangistauskaya Oblast district which is a vast area. If there is any need for airport, then contractor of Aktau international terminal building will build that.

During 30 years importance of Aktau city will increase because of increasing demand of oil.

4.6. Lessons Learned from Aktau International Terminal Project

-When entering new countries, studying its legislation and past BOT experience is critical. When a country is not experienced in BOT, the developer and investor must be cautious and seek a strong local partner(s).

- Studying local laws is vital specially when entering new markets. The example which was mentioned is important how developer can be prevented by host government to fire or resign any existing employees hence the developer is forced to work with existing teams and train them rather than to bring its teams.

- Preliminary stages and studies must be comprehensive. The reason for losing 2 million Dollars is considerable in previously mentioned example. The developer did not study well and faced a

situation in which could not get permission to operate the asphalt plant.

- Sometimes accurate predictions are very hard or even impossible. In this case, financial crisis occurred and destroyed feasibility studies which were aimed to take fund from banks and hence the developer was forced to rise from its pocket. At the beginning the developer must consider such situations and have alternative plans for these force majeure situations.

4.7. Comparison Between Two BOT Projects

According to the above mentioned issues and the interviewees' comments it is possible to say that Dalaman Airport Project was more successful than Aktau Airport. A comparison between the two Airport BOT projects can be discussed as follows:

1. Turkey is a pioneer in BOT and the term was first coined by its prime minister in 1984. The country also experienced its first airport BOT project in 1994 in Antalya terminal 1 project and kept on with several other airport privatizations. During those 10 years 1994 to 2004 in which Dalaman Airport was tendered, aviation authority in Turkey experienced the privatization of Antalya and Atatürk, two important and crowded airports. Dalaman Project was in a series of Airport BOT projects in Turkey. Because of these facts, rules and regulations at the time of Dalaman's tender were highly matured. The authorities also became more familiar with the term in the aviation sector, whereas Kazakhstan was the counterpoint. The country became independent

from the Soviet Union in 1991 and the communist system and its culture in which government is the single owner had dramatically affected the country. Privatization was an unfamiliar term and far from the country's history. Legal system had no BOT experience, neither in energy sector nor in aviation. Aktau International Airport Project was the first BOT experience in the country. Immature legal system together with lack of experience in BOT prevented Aktau from being as successful as Dalaman from legislation viewpoint.

2. Both Aktau and Dalaman airports were identified according to actual need. Even though in Dalaman there were some weaknesses as mentioned previously that some part of the project could be constructed later (Phase II) but the whole project was necessary. The area was encountering an increase in tourists therefore a new, modern, beautiful and appropriate international terminal was needed.

Aktau also has the same case but with a difference in the passenger profile. A vast country like Kazakhstan dramatically needs airports to facilitate transportation. Also the Aktau city area is very rich in oil and in the near future because of the high increase rate of oil request, more investment will be done in the region which makes this area more important and as a result its airport will be more significant and crowded. Other developments in the neighborhood such as New Aktau city will also increase this need.

3. Turkey has euromoney country risk (ECR) score of 56.29 while Kazakhstan has 49.33 (http://www.euromoneycountryrisk.com). Because of lower risk of the country, Dalaman was more successful in financial issues. Financial institutions and fund raising organizations intend to invest in countries with lower risk. This helped Dalaman to attract investment easier in comparison with Aktau. Because of the financial crisis in Kazakhstan which occurred during construction of Aktau Airport the initial plan (70% of the investment amount from banks and 30% to be provided by the developer) could not be implemented. Local banks could not raise money for the project and also Turkish banks could not give loan, because of the country risk. Hence the developer which was the same as Dalaman's was forced to invest for both terminal building and PAT projects from its pocket, whereas Dalaman was very successful in raising fund. As mentioned before there were three banks (two Germans and one Turkish) which raised fund for the project.

4. Dalaman Airport has minimum annual passenger guarantee by the government. This type of guarantee for a touristic airport is extremely critical. Aktau does not have passenger guarantee but has "No second facility" guarantee. This guarantee ensures developer that no construction company will construct an airport in the whole region of Mangistauskaya Oblast district. Touristic areas have risk of losing passengers as consequence of unpredicted incidents i.e. earthquakes, spread of contagious diseases, and etc. To mitigate this risk the

government guarantees minimum annual passenger number for touristic areas, whereas industrial areas do not need such guarantees and “No second facility” guarantee works better for those areas.

5. The main source of revenue in Aktau is passenger fees while in Dalaman Duty Free areas are main source of income. This as consequence of passenger profile shows its importance during feasibility study and operation phase.

6. Aktau project was implemented in a foreign country for the developer. Therefore delivering machinery and equipment (i.e. asphalt plant) had costs for the developer. Lack of local experienced and hard working labors was a critical problem during construction phase. It became worse when special rules and laws regarding the transfer of manpower from Turkey restricted the developer to bring experienced Turkish workers easily. Even during the operation phase, managerial staff has problems in obtaining residential visa.

In Aktau project the government was the most significant source affecting CSFs. Immature legal system, work permissions, visas, safety and environmental requirements, and “No second facility” were some events caused by the government. The country was the second significant source which affected more than half of CSFs, whereas in the Dalaman project, the developer was the most significant source affecting CSFs. Strong construction contractor, experienced operational

team, strong financial structure, and lack of some preliminary studies were some events caused by the developer.

These two projects were important because both were implemented by one company but in two different countries. The projects were constructed in two different areas, one in touristic and the other in industrial one. This showed significance of passenger profile in airport BOT projects. Areas with most of the passengers as tourists need more support and guarantees from the government, while industrial areas' airports usually do not. A summary of comparison between these two projects is shown in Table 4.3.

Table 4.3. Summary of comparison between Dalaman and Aktau projects

NO.	Item	Aktau (Kazakhstan)	Dalaman (Turkey)
1	Identification of project according to need	YES	YES
2	Total project amount (USD)	31,000,000	134,000,000
3	Tendered in year	2007	2004
4	Operation start date	11/9/2009	1/7/2006
5	Operation period	30 years	9 years
6	Maturity of legal system in recognizing BOT	Low	High
7	Past BOT Experience in the country	NO	YES
8	Past Airport BOT experience in the country	NO	YES
9	Country's ECR score	49.33	56.29
10	Passenger profile	Industrial and business	Touristic
11	Passenger guarantee	NO	YES
12	No second facility guarantee	YES	NO
13	Main source of income during operation	Passenger fee	Duty Free

Events relating to CSFs together with their sources and phases for each of these two projects have been summarized in Table 4.4. and 4.5.

Table 4.4. Events Relating CSFs in Dalaman Airport

	CSF	Event	Source	Project Phase
1	Appropriateness of project identification	Project was identified according to need	Government	Initiating
		Construction of a building without need for initial years		
2	Thorough and realistic costs-benefits assessment	Inaccurate passenger prediction	Developer	Initiating
3	Effective tender evaluation process	Holding Dalaman tender after some airport BOT projects	Government, Country	Initiating
4	Technical feasibility of project	Lack of soil investigation	Developer	Initiating
		Good integrations of airport systems	Developer	Build, Operate
5	Feasibility of quality, safety and environmental requirements	Receiving Green Airport Certification	Developer	Operate
6	Reasonable and effective risk allocation	Minimum annual passenger rate guaranteed by the Government and proper terminal operation risk on the developers shoulder	Government, Developer	Initiating
7	Integration and strong consortium structure	Trying rather than normal testing	Developer	Build
8	Strong technical and managerial capabilities of contractor	Opening terminal 8 months ahead of schedule	Developer	Build
9	Strong financial structure of consortium	Raising fund by two German and one Turkish banks	Developer, Country	Initiating, Build
10	Good consortium and government relationship and commitment	Less relationship between governmental agencies (Police and DHMİ)	Government	Initialing, Operate
11	Stable and mature legal and administrative framework	Matured legal system for airport BOT projects in Turkey	Government, Country	Initiating, Build, Operate
12	Stable political and economic situation of the country	Project tendered after settlement of single party government	Government	Initiating
13	Availability of adequate government support and guarantee	1,000,000 annual passenger guarantee	Government, Project	Initiating, Operate

Table 4.5. Events Relating CSFs in Aktau Airport

	CSF	Event	Source	Project Phase
1	Appropriateness of project identification	Project was identified according to need	Government	Initiating
2	Thorough and realistic costs-benefits assessment	Failure of Aktau new city project	Government, Country	Initiating
3	Effective tender evaluation process	Not so competitive tender was held	Government, Country	Government, Country
4	Technical feasibility of project	Reject of façade material by the government	Government	Build
		Absence of selected airport systems' local distributor	Developer, Country	Build, Operate
5	Feasibility of quality, safety and environmental requirements	Prevention of operating the installed asphalt plant	Government, Developer	Build
6	Reasonable and effective risk allocation	The government did not take any risk	Government	Initiating
7	Integration and strong consortium structure	Consortium consisting of two Turkish companies, second party was established in Kazakhstan	Developer	Initiating, Build, Operate
8	Strong technical and managerial capabilities of contractor	Strong contractor but with problems for construction in foreign country	Government, Country., Developer	Build
9	Strong financial structure of consortium	Financial crisis in the country forced developer to raise the whole fund from its pocket	Country, Government	Build
10	Good consortium and government relationship and commitment	Good relationship between government and developer was established	Government, Developer	Initiating, Build, Operate
11	Stable and mature legal and administrative framework	Immature legal and administrative framework for BOT	Government, Country	Initiating, Build, Operate
12	Stable political and economic situation of the country	Politically stable but financially not	Government, Country	Build, Operate
13	Availability of adequate government support and guarantee	"No second facility" Guarantee for 30 years	Government	Initiating, Operate

CHAPTER 5

CONCLUSION

From diverse variety of privatization spectrum term BOT was selected for this research which is considered as a model for construction of infrastructural projects especially in developing countries. BOT method differs from traditional ones because of its financial structure and operation service as included in the concession. Considering complexity of BOT projects, implementing successful ones always needs paying attention to factors called Critical Success Factors.

Under the guidance of the previous researches done, a list of critical success factors was created. A checklist of factors that have two dimensions “source” and “phase” was developed. This checklist formed the basis for interviews with experts and it was updated considering the opinions of experts and lessons learned about real projects.

Past studies are lacking focus on airport projects and clear description of those factors. These needs were main reasons to conduct this research. The research aimed to identify critical success factors for BOT projects by examining the real airport projects. Nine airport BOT projects were mentioned in thesis and were referred to as examples for critical success factors, namely:

1- Stip Cargo Airport, Macedonia

2- Bodrum Airport, Turkey
3- Antalya Airport, Turkey
4- Enfidha-Hammame Airport, Tunisia
5- Medina Airport, Saudi Arabia
6- Imam Khomeini Airport, Iran
7- Batumi Airport, Georgia
8- Dalaman Airport, Turkey
9- Aktau Airport, Kazakhstan

Sources of CSFs and project phase were dimensions considered in the checklist. As shown in the updated checklist (Table 3.2.) government and developer are two most important sources affecting project success. Also, three success factors were observed with high level of significance during all phases of project:

1- Technical feasibility of project
2- Stable political and economic situation of the country
3- Availability of adequate government support and guarantee

To have a successful BOT project, having a strong consortium is not enough and paying special attention to these factors and having plan to carefully deal with them together with well study of host government rules and regulations are critical tasks.

Studying the two airport projects in detail (Chapter 4) gives illustrative examples about airport projects and demonstrates validity and utilization of the checklist for such projects. Two tables (Table 4.3.

and 4.4.) shows most important events happened in two airports with their relation with CSFs and introducing phase and source of CSF.

The findings of this research are helpful for decision makers of BOT projects at initial stages of projects by providing an updated checklist of CSFs and their significance in each phase of a BOT project. This will help them for better planning of the projects and gives them better idea about CSFs and they will be able to generate formulas for success of their projects at early stage of projects.

One of the important results of this research was recognition of Turkish airport BOT tenders as a successful model. The legal and administrative system for airport BOT projects in Turkey is mature because of series of such projects implemented in the country. A future study may study deeply on the Turkish BOT airport tender package to better introduce this model to other developing countries.

Studying other projects from other countries and utilizing checklist for them is another field for future studies. Putting more experiences together will give very clear image of airport BOT projects and lessons learned from them will prevent faults and problems in the future projects together with contribution to the literature. Deep study of other seven projects mentioned in this research like Dalaman and Aktau will be extremely useful for decision makers.

The interviews in this research were with experts from private sector, companies with experience in airport BOT projects. The next step in this regard would be interviewing with experts from government and inside the legislation system to illustrate critical success factors

from governmental point of view and will help to create more accurate image of airport BOT projects.

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