Risks, Challenges, Benefits and Opportunities Associated With Bot Projects in Pakistan: A Case Study on M-9 Motorway Project

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***Abstract*: The trend of BOT projects is increasing in Pakistan day by day. Such projects provide good opportunity for clients to invest their resources in other programs and also provide good opportunity for contractors to increase their revenues during the concession period. But, on the other hand, there are also some risks and challenges which are faced by the concerned parties in these projects. This study identifies the major risks and challenges faced as well as the major benefits and opportunities obtained from recently constructed BOT project in the country M-9 motorway and interviews have been conducted from various professionals related to this project from the concerned parties. The major risks, challenges, opportunities and benefits obtained from this project by all parties are identified and recommendations are given to mitigate those risks and challenges for successful execution of future BOT projects to be constructed in Pakistan.**

***Keywords:* BOT, Risks, Challenges, Execution, Management**

I. INTRODUCTION

Infrastructure development is the most necessary requirement for economic development of any state. Most of the developed countries have number of infrastructures contributing towards their economy and still have resources in ample quantity to undertake new projects. On the other hand, there is much need of such infrastructures in third world countries but they are not able to carry out such developments due to lack of financial as well as human resources. This deficiency of financial resources and public funding does not allow their governments to develop infrastructure at faster pace due to which there arises a need for attracting private companies and other foreign investors to fund the projects through Build-Operate- Transfer (BOT) technique. It is a type of contract mechanism which attracts the involvement of private sector companies and other secondary agencies to fund the project, build it, operate it for a certain concession period, involving collection of revenue from end users to recover funds plus profit, and then transfer it back to primary agency, usually government, free of cost. Government, sponsor, construction contractor and operating and maintenance contractor are the key stakeholders of these kind of projects. Government Agency is the primary agency or initiator of BOT projects used to approve, monitor and control the projects from start to end in proper manner to save funds and protect the interests of its people. It conducts tendering processes and evaluation of tenderers, grants concession period to sponsors and guarantees the financers about the liabilities to be paid to them. Sponsor is a single company or a syndicate of concerned groups such as a construction firms, operator, a monetary institution and other groups that are hired by the government through proper tendering process to build, fund, and manage the project (Mubin et al, 2008). The Sponsoring agency can be a company, a unit trust, an unincorporated joint venture, a partnership, or a limited partnership. Construction Contractor is one of the sponsors or a separate company which undertakes the construction and completion of the project in line with time, cost and specification requirements and in the Operating and Maintenance Contractor are the contractors who makes themselves agree with sponsors for the safe and efficient operation. This agreement comprises of not just maintaining but also management facilities for an ongoing project. Little risk like up front capital and expenditure is common to be accepted. Although inclusion of equity by operators in a project can also happen. Financial institutions involve a bank or group of banks, lenders etc which provide loan to sponsors for project execution. Banks usually require first security over the infrastructure created. In case, cost overruns occur in the project, stand-by loan facility is often provided by banks.

The significance of such projects can be seen from their applicability which is gaining popularity day by day in the developing countries like Pakistan, where the government does not have enough resources to fund and build the mega projects like highways, motorways etc. Instead, the government offers request for proposal thus inviting private bidders as well as other foreign investors and companies to bid the project. Such projects do not only save the government funds but also provide services to end users during their operational phase. The nature of such type of contract is quite complicated because of the involvement of multiparty and its long term contractual obligations. If the BOT contracts are carried out in transparent and structured manner, this approach promotes open contest and provides the lowest achievable project cost. Most of the risk in BOT Contracts is transferred to the private sector (Mubin et al, 2008). This risk transfer and saving of funds further allows government to utilize its limited resources for other areas such as health, education, rural development, poverty reduction, and fulfilment of other necessities of domestic life of its citizen (Mubin et al, 2008).

The tendency towards BOT projects in Pakistan is increasing day by day at sound pace. National Highway Authority (NHA), the primary Government agency, responsible for execution of highway and motorway projects in Pakistan, is focusing on such type of projects to involve private sector. The aim of present government is to upgrade the road infrastructure in coming 5 to 7 years. The government aims to increase the road density to double till 2025. This giant development goal can only be accomplished through the support of private sector.

Table 1 briefly presents the ongoing and completed BOT projects in Pakistan. Keeping in view the demand of the BOT based projects in Pakistan, this study has been conducted on recently constructed Karachi-Hyderabad Motorway Project (M9). The primary object of this study is to identify the challenges which are faced in BOT Projects in Pakistan, to understand that what risks are involved in these kinds of projects and to find the opportunities and future benefits under BOT based projects.

Table 1: List of Ongoing or Completed BOT Projects in Pakistan

S No.	Project Name	Employer/Primary Agency	Sponsor	Length (KM)	Estimated/Actual Cost	Remarks
1	Lahore-Sheikhupura-Faisalabad Dual Carriageway	Government of Punjab(Communication and Works Department)	Frontier Works Organization	115.5	2713 Millions	Completed
2	Lakpass Tunnel Project	National Highway Authority (NHA)	Frontier Works Organization	5.04	921.72 Millions	Near Completion
3	Neelum Jehlum Hydroelectric Power Project	Government of Pakistan (Water and Power Development Authority)	Frontier Works Organization	-	$ 250 Billions	Near Completion
4	Retargeting and Renovation of Lahore Islamabad Motorway (M2)	Government of Pakistan (National Highway Authority	Frontier Works Organization	714	30.935 Billions	Completed
5	Karachi-Hyderabad Motorway (M9)	Government of Pakistan (National Highway Authority)	Frontier Works Organization	134	32.15 Million	Completed
6	Hyderabad-Sukkur Motorway (M6)	Government of Pakistan (National Highway Authority)	China State Construction Engineering Corporation	296	175 Billion	Yet to Commence
7	Sialkot-Lahore Motorway (M11)	Government of Pakistan (National Authority)	Frontier Works Organization	90	43.847 Billion	Under Construction

II. LITERATURE REVIEW

The BOT method of construction is increasing day by day in developing countries like Pakistan. According to Mohammed et al (2012), it was reported that Turgut Ozal, a former Prime Minister of Turkey, first coined the term BOT and used the BOT approach in Turkey in 1984 as a part of the Turkish Privatization Program. BOT method is quite different from complete privatization of the project. The government owns the land for a certain period and then sells it to private company in case of privatization. On the other hand, in BOT method, the government gives the project to a private sector to build it on their own cost without any utilization of government resources, grants them a certain concession period to generate their revenues from the project and finally, the private sector hands over the project back to government at no cost. On the basis of type, nature and risks involved, the contract period of such projects varies between 20 to 30 years. Such strategy helps the government of developing countries to utilize its resources on current crisis, such as power shortage.

Many projects of such nature have been constructed all over the world. They include Suez and Panama canals having 99 year concession period, Sydney Harbour tunnel, Sydney Harbour Casino, superhighway project in China, toll tunnels in Hong Kong, the Don Muang expressway in Bangkok, Thailand, Malaysia's Kepong toll road, Mexico City-Guadalajara project, the channel tunnel project granted by governments of United Kingdom and France, Dulles toll road extension labelled as 1st BOT highway in United State and Airport terminal no 3 of Pearson International airport in Toronto, Canada which is known as first BOT airport terminal project in Canada. Moreover, almost 111 known BOT projects over 31 countries were listed by Charles Walker and Adrian Smith in 1995. (Mubin et al, 2008)

The concept of BOT is quite old in Asian continent since 1980. In East Asia, Governments mostly prefer private sectors to participate in BOT projects due to lack of financial resources (Bakri et al, 2010). Involvement of private sector in energy

related infrastructure projects in East Asia and Pacific recorded the highest investment amounting to US$ 101,187 million followed by telecom, transport and water and sewerage. (Bakri et al, 2010). It was estimated by World Bank in 1997 that the developing countries worldwide will spend a total of US$ 200 billion on infrastructure development each year out of which, 80% expenditure will be from Asian countries (Mohammed et al, 2012).

The success of any project is measured by estimated returns obtained from investments done in project through financial analysis. If the benefit cost ratio is greater than 1, this means the project is feasible otherwise, suitable strategy is adopted to make the project feasible. According to Tiong (1996), though BOT projects provide number of opportunities for both governments and contractors yet winning a BOT contract is not easy as the negotiation process is quite complex, timeconsuming, and expensive business (Esmaeli et al, 2014). To overcome the problems which caused hindrances in the economic growth and development of the state, many Asian countries turned to privatization of infrastructure in the mid 1980's but the high frequency of such projects did not help to achieve the desired goals due to many problems including political controversy, legal battles, strict regulations and policies and fights between vested interests of the parties which led one economist to relabel the concept as 'Built-Operate-Litigate'. (Mubin et al, 2008). The implementation on such technique by Pakistan government was quite weak in the 1st decade of the 21st century as only one project was able to be completed on BOT basis, LahoreSheikhupura-Faisalabad dual carriageway. This was due to the political and economic instability in the state and also, the government as well as people were unaware of the process along with benefits and opportunities which can be obtained from adopting this method. Keeping in view these problems, Mubin et al (2008) developed a comprehensive model for successful implementation of BOT projects in a multi-layered type system like Pakistan. He further suggested to develop mathematical models and adopt trial and error methods for checking its theoretical success and practical implementation respectively, due to the reason of various scheduled and unscheduled uncertainties involved in a construction system like Pakistan. This model involved following steps: Identification of project, coordination, Preliminary screening, formal approval, project committee formulation, request for proposals, evaluation of proposals, construction, commissioning, revenue collection, operation and maintenance, transfer of project to government agency. Another simple model showing BOT projects trend in Pakistan was developed by Khan et al (2008) to introduce BOT concept to various engineering professionals working in different organizations by reviewing journal and conference papers highlighting updated status of BOT projects, their research and developments at that time and by conducting interviews with professionals working in such environment.

The benefits occurring from BOT projects are extensive. These involve technology transfer, concession period, incentive scheme, market and contract led revenue, commercial freedom, foreign exchange, projects identification, entrepreneurship and leadership (Khan et al, 2008). In contrast, the level of risk is also high, especially the financial risk, because many parties are involved in such projects like lenders, investors, consultants, sponsors, operation and maintenance contractors, other financial and multilateral institutions, insurance agencies etc with each having their specific functions. This wide range of options in BOT contracts allows flexibility and the potential to move from less risky arrangements to riskier arrangements involving a larger share of private investment (Mubin et al, 2008).

Risks also play an influential role in execution of BOT projects. It may be defined as a measure of undesirable negative results of an event. Risk is further classified as global risks which are induced on the project externally and elemental risks which generate and can be managed within the project dimensions. There are many sources of risk such as construction cost, operation cost, construction time, Project capital, market conditions, government policies and stake holder's cooperation. Bakri et al (2010), conducted study on risks and mitigation measures in BOT projects and defined 8 different types and sources of risks including financial risks, political risks, technical risks, market risks, inadequacy of concession contract, shareholder's risks and risks associated with changes among key management personnel. It was recommended through research that financers should conduct feasibility studies before they fund a BOT project, similarly to the promoters before they embark on the project. It was advised to conducted comprehensive risk management and develop mitigation plan to be strictly followed for successful implementation of project.

Risks in the project occur at every stage whether it is initiation, implementation or operational phase. It is necessary that these risks should be managed through proper managerial skills. Continuing risk evaluation through the whole life span of the project is essential to manage and operate the stakeholders' asset and risk mitigation measures are required to be adopted by the promoter throughout the concession period along with host government's support (Bakri et al, 2010). These risks can be managed through risk management model which includes Risk identification, Risk classification, Risk breakdown structure, Risk probability and impact factor, Risk analysis, Monte Carlo simulation, Identification of critical risk, Risk management strategy and Risk monitoring process. After implementing risk management model, the performance of model is monitored through which corrections and timely upgradations can be made and at last, results are placed in data bank system which can be used for other projects. (Mubin et al, 2008)

The role of government is also quite important in successful implementation of BOT Projects. Political stability, socio economic influence, structure and long term policies of government have vital impact on BOT project execution. Study conducted by Mubin et al (2008) shows that BOT projects are carried out at three levels which are federal, provincial and local or district governments respectively. It further states that the implementation of such projects at local government level (level 3) is quite less and complicated because of much socio economic influence and political interference whereas at federal level, such influences and interference is quite less. The political and economic instability, in the form of suicide attacks and many other issues, remained as a serious hurdle in the formulation of various infrastructure development reforms like BOT and in the decision making of the organizational management structures to finance or launch their projects in Pakistan for the last

twenty years (Khan et al, 2008). Political instability and political risks involved during life of projects are major deterrents for private sector participation (Amin et al, 2012). Government must be able to attract private investors to fund the project and should also be stable enough to provide return or payback to investors in order to minimize their financial risks. In addition, it must be able to attract private sector and foreign investment for infrastructure development by providing guarantees, bonds and surety considerations according to international standards as well as sharing risks efficiently. Thus, balanced efforts from the government are indispensable to achieve a win-win situation for both the public and the private sectors (Mohammed et al, 2012). The Hong Kong model in developing BOT-type schemes that has mainly evolved from the experiences and lessons in developing five major BOT tunnel projects over more than 30 years, provide pointers to good governmental practice. (Mohammed et al, 2012)

Many studies have been conducted on role of sponsors or private sectors in BOT projects along with the challenges and risks faced by them. Project costs, projection of revenues during concession period and selection of an appropriate financing strategy are the three major challenges faced by a prospective sponsor in the construction industry (Khan et al, 2008). The documentary evidences showing profile of sponsors must be strong enough to avail maximum chances of winning the project. The strength of sponsor and its financial stability are the most important factors in winning any BOT contract. The concession period of operating the project for sponsor can be increased by government with different tax system if he provides efficient services and facility to the end users (Mubin et al, 2008). Participation of other private sectors such as financial institutions, O & M Contractors, suppliers etc also influence the BOT project execution. Amin et al (2012) conducted study on identifying top ten factors affecting private sector participation in BOT Projects through questionnaires and interview based surveys. These factors are political instability, no insurance for political risks, political interference at approval stage, corruption, inability of banks to provide long term financing, inflation, high cost of financing, terrorism, misallocation of risks and lack of guarantees. Moreover, he concluded that continuous increase and decrease in the rate of Pakistani rupee, rising interest rates of banks, inefficient utilization of energy resources and high oil prices in the country are the main economical barriers creating negative impact on stakeholder's effective participation in BOT projects. In addition, the research also recommended the modification of procurement, implementation and operational processes in the project and increased transparency in BOT project executions.

III. RESEARCH METHDOLOGY

This research was carried out to identify the risks and challenges as well as opportunities and benefits associated with the construction of BOT projects in Pakistan. The scope of this research was limited to recently constructed project "Karachi Hyderabad Motorway M-9" which is basically the part of Karachi-Lahore Motorway (KLM) Project. It is a 136 Km long 6lane motorway under construction (Re carpeting of existing super highway). The client, sponsor and consultant of this project are National Highway Authority (NHA), Frontier Works Organization (FWO) and National Engineering Services of Pakistan (NESPAK).

A list of recipients to be interviewed in the survey was prepared along with their contact information. This list also involved some recipients to which the questionnaire survey form was emailed because of their packed schedule. The targeted audience included the authorities involved in project from client's side, constructor's side, and consultant's side. These authorized persons from each group have been approached either through personal or professional contacts. Questionnaire survey form was prepared after thorough review of literature available on this topic, identifying the risks, challenges, benefits and opportunities associated with each major agency involved in the project. Almost 6 days were spent in interviewing the professionals from each group as well as getting response from the recipients through emails. A total number of 15 professionals related to this project were interviewed from all groups including 5 from client, 5 from contractor and 5 from consultant's side. The results obtained from the interviews and responses in the form of questionnaires from client, contractor and consultant's side were analyzed using relative importance index method which showed the major risks, challenges opportunities and benefits arising from the project from each party's perspective. At the end, solutions are given for how to tackle with these risks and challenges, and recommendations are given for future BOT projects to be constructed in Pakistan.

IV. ANALYSIS, RESULTS AND DISCUSSIONS

The data collected in the form of questionnaires from client, contractor and consultants has been analyzed by relative importance index method. The factors were ranked from High to low with 3 is high, 2 is medium and 1 was set as low. From the equation 1 relative index utilized was calculated.

$$\mathbf{RII} = \sum \mathbf{W} / (\mathbf{A}*\mathbf{N}) \qquad (1)$$

Where, W= weighting given to each factor by respondents (1to 3)
A = high weight age (i.e. 3 in this case),
N = Total number of respondents

Table 2: Challenges faced in BOT Projects

I.D	Challenge	Responses																Relative Importance Index		
		Client					Consultant					Contractor						Client	Consultant	Contractor
1	Project cost Control	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3		0.867	1.000	1.000
2	Projection of revenues during concession period	3	3	3	3	3	2	2	2	2	2	3	3	2	3	3		1.000	0.667	0.933
3	Selection of an appropriate financing strategy	3	2	2	2	2	2	2	2	2	2	3	3	2	3	3		0.733	0.667	0.933
4	Political Instability	2	3	2	1	3	1	1	2	1	1	2	2	1	1	2		0.733	0.400	0.533
5	Political Interference at implementation stage	3	3	3	3	3	2	2	2	2	2	2	1	2	1	2		1.000	0.667	0.533
6	Corruption	1	1	1	1	1	1	1	1	1	1	2	3	1	1	3		0.333	0.333	0.667
7	Inability of Banks to provide long term financing	1	3	3	1	2	2	2	2	2	2	3	1	1	1	3		0.667	0.667	0.600
8	Rising Interest rates of banks	1	1	1	1	1	2	2	2	2	2	3	3	2	2	3		0.333	0.667	0.867
9	Inefficient Utilization of Energy Resources	1	1	1	1	1	3	2	1	1	1	2	2	3	2	2		0.333	0.533	0.733
10	Devaluation of Pakistani Rupee	1	1	1	1	1	3	1	1	1	1	3	3	2	2	3		0.333	0.467	0.867
11	High Oil Prices in the country	1	1	1	1	1	2	2	2	2	2	2	3	2	2	1		0.333	0.667	0.667
12	Inflation	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2		0.333	0.667	0.667
13	Terrorism	3	2	3	3	3	2	2	3	2	2	2	3	3	2	2		0.933	0.733	0.800
14	Socio Economic Influence	3	2	3	3	2	2	3	3	2	2	2	3	2	2	2		0.867	0.800	0.733
15	Complex Negotiation Process	3	3	3	3	3	1	2	2	1	1	1	3	2	3	3		1.000	0.467	0.800
16	Time Consuming Effort	3	3	3	3	3	3	3	3	3	3	2	3	1	3	2		1.000	1.000	0.733
17	Strict Regulations and Policies	3	2	2	2	2	3	3	3	3	2	2	2	2	3	2		0.867	0.933	0.733

Table 3: Risks faced from BOT Projects

ID	Risk	Responses																Relative Importance Index		
		Client					Consultant					Contractor						Client	Consultant	Contractor
1	Land acquisition delay	3	3	3	3	3	3	3	3	1	3	3	3	3	2	3		1.000	0.867	0.933
2	Delay in approval from government agencies	1	2	1	1	1	2	2	2	2	2	3	2	2	3	3		0.400	0.667	0.867
3	Risk of transportation network in region influencing to BOT project	3	3	3	3	3	1	1	1	1	2	3	3	1	3	2		1.000	0.400	0.800
4	Cost overrun risk	1	3	2	1	1	2	3	3	2	2	3	2	3	3	3		0.533	0.800	0.933

5	Unrealistic forecast future economic development and demand of society	2	3	3	2	3	2	2	3	2	2	3	2	2	2	3	0.867	0.733	0.800
6	Misallocation of risks and lack of guarantees	3	3	3	3	3	1	1	1	1	1	3	2	1	2	2	1.000	0.333	0.667
7	Incorrect analysis of duration of ownership	3	2	2	2	2	1	1	1	1	1	3	3	1	3	3	0.733	0.333	0.867
8	General Corruption and untrustworthiness of government officials	1	1	1	1	1	1	1	1	1	1	2	3	1	3	2	0.333	0.333	0.733
9	Actual traffic revenue lower than estimated	3	1	1	1	1	2	2	2	2	2	3	3	3	3	3	0.467	0.667	1.000
10	Poor financial and plant resources of investors and contractors	3	3	3	3	3	2	2	1	2	2	2	3	2	2	1	1.000	0.600	0.667
11	Poor quality of construction	3	3	3	3	3	2	2	3	2	2	2	2	2	2	2	1.000	0.733	0.667
12	Failure in providing regular maintenance facilities	3	2	2	2	2	2	2	2	2	1	1	2	2	2	1	0.733	0.600	0.533
13	Delay in transfer with intention to collect more profit	1	1	1	1	1	1	1	1	1	1	2	3	2	1	2	0.333	0.333	0.667
14	Cash Flow inadequacy to meet debt servicing due to decline in traffic revenue	1	2	1	2	2	1	1	1	1	1	3	3	1	3	3	0.533	0.333	0.867
15	Lack of appropriate toll adjustment mechanism	1	2	1	1	2	1	1	1	1	1	3	3	2	2	3	0.467	0.333	0.867
16	Delay in financial closure	1	2	1	1	2	3	3	3	3	3	2	2	2	1	2	0.467	1.000	0.600
17	Uncertainties in traffic volume during long contract period	3	3	3	3	3	2	2	2	2	2	3	3	2	1	3	1.000	0.667	0.800
18	Inability of government to upgrade or maintain infrastructure facilities linking to project	1	2	2	2	3	2	3	2	2	2	3	3	1	2	3	0.667	0.733	0.800
19	Scheduled and unscheduled uncertainties	3	3	3	3	3	2	3	3	3	3	2	1	1	1	3	1.000	0.933	0.533
20	Fights between vested interest of parties	3	3	3	3	3	1	1	1	1	3	2	3	1	2	2	1.000	0.467	0.667
21	Uncertain Price of Critical raw material	1	1	1	1	1	3	3	3	3	3	3	3	2	2	3	0.333	1.000	0.867

Table 4: Benefits Obtained from BOT Projects

ID	**Benefits**	**Responses**															**Relative Importance Index**		
		Client					Consultant					Contractor					Client	Consultant	Contractor
1	Technology Transfer	1	2	1	1	1	2	2	1	2	2	3	1	2	1	2	0.400	0.600	0.600
2	Concession Period	2	3	3	3	3	2	2	2	2	3	3	3	2	3	3	0.933	0.733	0.933

3	Incentive Scheme	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	0.333	0.667	0.533
4	Market and Contract led revenue	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	0.667	0.333	0.667
5	Commercial freedom	3	3	3	3	3	1	1	1	1	1	3	3	1	3	3	1.000	0.333	0.867
6	Foreign exchange	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.333	0.333	0.333
7	Project Identification	3	3	3	3	3	2	2	2	2	2	2	3	2	3	2	1.000	0.667	0.800
8	Entrepreneurship and leadership	1	1	1	1	1	1	1	2	2	2	1	2	2	1	1	0.333	0.533	0.467
9	Risk reduction among the parties	3	3	3	3	2	2	2	3	2	2	3	3	1	3	3	0.933	0.733	0.867
10	Return on investment	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	1.000	1.000	0.867

Table 5: Opportunities Availed in BOT Projects

ID	Opportunities	Responses															Relative Importance Index		
		Client					Consultant						Contractor				Client	Consultant	Contractor
1	Increase in employment	3	3	3	3	3	2	2	3	2	2	2	3	3	3	3	1.000	0.733	1.000
2	Improvement in Infrastructure	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	1.000	1.000	0.867
3	Access to private finance for government	2	2	2	2	2	2	3	3	3	3	2	3	3	2	3	0.667	0.933	0.867
4	Increased Revenue	3	3	3	3	3	2	2	2	2	2	2	3	3	2	2	1.000	0.667	0.867
5	Diversion of resources to other social programs	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	1.000	1.000	0.800
6	Issuance of Guarantees Bonds and Surety Considerations according to international standards	2	3	2	3	3	1	1	1	1	2	1	2	3	1	3	0.867	0.400	0.733
7	Preference from government for awarding future projects of similar nature if the present project is executed in proper way	3	3	3	3	3	2	2	3	2	2	2	3	3	2	3	1.000	0.667	0.933
8	Increase in concession period if project is executed in proper way	2	2	2	2	2	3	3	3	3	3	3	3	2	1	2	0.667	0.400	0.733

From analysis, it has been observed that projection of revenues during concession period, political interference at implementation stage, complex negotiation process, time consuming effort, terrorism, project cost control and socio-economic influence are the major challenges faced from project by client's side (Table 2). As far as risk is concerned, it has been observed from the analysis in Table 3 that, land acquisition delay, risk of transportation network in region influencing to the project, misallocation of risks and lack of guarantees, poor financial and plant resources of contractors, poor quality construction, uncertainties in traffic volume during contract period, scheduled and unscheduled uncertainties, fights between parties for vested interests and unrealistic forecast future economic development and demand of society are the major risks faced from project by the client. When we considered about the benefits (Table 4), we found from data analysis that commercial freedom, project identification, return on investment, risk reduction among the parties and concession period are the major benefits in

the project by client's side. From Table 5, we observed that increase in employment, improvement, infrastructure, increased revenue, diversion of resources by government to other social programs, issuance of bonds and sureties according to international standards and preference by government to award contract to same contractor if project executed in proper way are the major opportunities obtained from this project from the client.

From table 2, it can be seen further that project cost control, time consuming effort and strict regulations and policies are the major challenges faced from this project construction by consultant's side. From risk point of view (table 3), it has been observed that land acquisition delay, delay in financial closure, scheduled and unscheduled uncertainties and uncertain price of critical raw materials are the major risks faced from the project by consultant's side. While considering the benefits (table 4), return on investment is one of the major benefit obtained in this project by consultant. Improvement in infrastructure, government's ability to access to private finance and ability to divert its resources to other social programs like health and education are the major opportunities from this project from consultant's perspective as seen in table 5.

From contractor's point of view, project cost control, projection of revenues during concession period, selection of an appropriate financing strategy, rising interest rates of banks and devaluation of Pakistani rupee are the major challenges faced from this project construction (Table 2). When risks are considered for the contractor (Table 3), actual traffic revenue lower than estimated, land acquisition delay, cost overrun risk, delay in approval from government agency, incorrect analysis of duration of ownership, lack of appropriate toll adjustment mechanism, cash flow inadequacy due to low traffic revenue and uncertain price of critical raw material are the major risk faced by contractor from this study. Furthermore, looking benefits for the contractor in this study, we found from Table 4 that concession period, commercial freedom, risk reduction among the parties and return on investments are the major benefits that are and can be obtained. At last, from Table 5, it is observed that increase in employment, preference from government for award of such projects in future, improvement in infrastructure, access of government to private finance and increased revenue are the major opportunities obtained from such project from contractor's perspective.

V. CONCLUSIONS

Interviews were conducted from representatives of client contractor and consultant related to M-9 Motorway for identifying the challenges, risks, opportunities and benefits associated with the project from their perspective. Data Analysis was done after conducting interviews using relative importance index method and following conclusions are drawn:

i. From client's perspective, major challenges identified are projection of revenues during concession period, political interference at implementation stage, complex negotiation process, time consuming effort, terrorism, project cost control and socio economic influence, whereas, major risks identified are land acquisition delay, risk of transportation network in region influencing to the project, misallocation of risks and lack of guarantees, poor financial and plant resources of contractors, poor quality construction, uncertainties in traffic volume during contract period, scheduled and unscheduled uncertainties, fights between parties for vested interests and unrealistic forecast future economic development and demand of society.
ii. Moreover, from client's point of view, major benefits found are commercial freedom, project identification, return on investment, risk reduction among the parties and concession period whereas, major opportunities are increase in employment, improvement in infrastructure, increased revenue, diversion of resources by government to other social programs, issuance of bonds and sureties according to international standards and preference by government to award contract to same contractor if project executed in proper way.
iii. From consultant's perspective, major challenges are project cost control, time consuming effort and strict regulations and policies whereas, major risks are land acquisition delay, delay in financial closure, scheduled and unscheduled uncertainties and uncertain price of critical raw materials.
iv. Return on investment is the major benefit whereas improvement in infrastructure, government's ability to access to private finance and ability to divert its resources to other social programs like health and education are the major opportunities from BOT project from consultant's point of view.
v. From contractor's point of view, project cost control, projection of revenues during concession period, selection of an appropriate financing strategy, rising interest rates of banks and devaluation of Pakistani rupee are the major challenges whereas, the major risks encountered are actual traffic revenue lower than estimated, land acquisition delay, cost overrun risk, delay in approval from government agency, incorrect analysis of duration of ownership, lack of appropriate toll adjustment mechanism, cash flow inadequacy due to low traffic revenue and uncertain price of critical raw material.
vi. Concession period, commercial freedom, risk reduction among the parties and return on investments are the major benefits and increase in employment, preference from government for award of such projects in future, improvement in infrastructure, access of government to private finance and increased revenue are the major opportunities from such mega projects from contractor's perspective.

VI. RECOMMENDATIONS

From this research work, number of major risks and challenges have been identified which have been faced by all the directly as well as indirectly concerned parties in this BOT project. Though this project has been completed, yet more BOT projects are to be constructed in Pakistan in future. Therefore, in the light of this research, following recommendations are given for

mitigating these risks and challenges so that such projects are executed in proper manner, thus providing win-win situation for all parties.

i. An appropriate mechanism of toll collection should be devised so that required revenue is collected by the concessionaire within the concession period and delay in transfer is avoided.
ii. Good documentation should be prepared in order to make the concerned parties informed about their responsibilities in the project. By doing this, misallocation of risks among the parties and complex negotiation process resulting in delaying of the project is avoided. iii. Queries of the localities surrounding the project must be addressed and their consent must be received before conducting further studies on such project. iv. Proper alternative/service road as per standards should be provided during execution phase in order to avoid fatal accidents or increase in travelling time.
iii. Study on financial feasibility of the project must be conducted in a proper way by taking all the internal as well as external financial risks to be faced in project execution in future such as rising interest rates of banks and devaluation of Pakistani rupee etc and proper plan should be prepared.
iv. Flexibility must be provided in execution plan for scheduled and unscheduled uncertainties that may arise in the project.
v. Special security forces should be provided for execution of such mega projects, especially when they are to be constructed by foreign contractors, so that chances of life threats and terrorism are reduced and project is executed in smooth way.
vi. Political interference in such projects must be avoided by introducing certain rules and regulations which should ensure strict accountability in such projects.
vii. Bidding procedure for such projects must be carried out in compliance with strict policies so that such projects are awarded to competitive and responsible contractor.
viii. Public interest must be given top priority in such projects rather than any personal interest.

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