

**CONSTRUCTUAL ASPECTS OF CONSTRUCTION RISK
INSURANCE – PRACTICES OF CONSTRUCTION RISK
INSURANCE IN CONSTRUCTION INDUSTRY OF PAKISTAN**



FINAL YEAR PROJECT UG-2012

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NUST Institute of Civil Engineering
School of Civil and Environmental Engineering
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Islamabad, Pakistan

2012

This is to certify that the
Final Year Project Titled

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Final Year Project Report

Submitted to

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in

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ABSTRACT

Accidents are frequent and offer severe in Construction works due to the hazardous nature of these works. The number of deaths, injuries to human bodies and damage to the property per year is on a high in construction. And also construction activities involve large investments in Public Projects. This makes construction business riskier and it becomes difficult and more critical to handle financial matters. Construction Risk Insurance (CRI) is one of the risk management tools which is used by contractors to transfer the risk related to unforeseen circumstances in the construction process. These unforeseen circumstances bear potential risks that may cause damage to life, property and material etc. This study aims at highlighting the contractual aspect and current practices of CRI in construction industry of Pakistan.

A number of contractors were surveyed randomly as a sample through a questionnaire in order to determine current practices of CRI in the industry. The above mentioned questionnaire was prepared by keeping in mind the contractual clauses relating to CRI, current practices of CRI in the construction industry of Pakistan and their comparison with the clauses in FIDIC. The study helped in determining the current CRI practices and hence preparing a beneficial set of recommendations to highlight the shortcomings and improvements in the current practices of CRI in Pakistani Construction Industry.

DEDICATION

We would like to dedicate our efforts and this report to all the construction workers of Pakistan. Through their hard work dreams get changed into reality. We owe the gratitude to them for taking on harder and unacknowledged part of the Construction works.

ACKNOWLEDGEMENT

We take this opportunity to express our deep appreciation to our supervisor, Dr. Jamaluddin Thaheem, for his conscientious guidance and Encouragement. His experience as a counselor and as an engineer was reflected by his comments; his actions manifested his willingness to devote his time and energy to help us, by always being available despite his busy schedule.

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LIST OF ABBREVIATIONS

CRI- Construction Risk Insurance

UAE- United Arab Emirates

FIDIC- Fédération Internationale Des Ingénieurs-Conseils
(International Federation of Consulting Engineers)

CAR- Contractor's All Risk Insurance

WCI- Workers Compensation Insurance

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CHAPTER 1

1. INTRODUCTION

1.1 General

In all human endeavor including construction activities, risk is inherent. And the risk or danger involved is extremely varied and diverse. The scope of construction activities is very vast. It extends to risk management in planning, scheduling and controlling activities and resource management to effectively reduce the effect of uncertainties. Risk if not managed properly results in time and cost over-runs. This makes risk an object of serious attention in construction projects. There are various forms of risk, and its severity often times depends on the situation. Every risk requires its own counter measures related to the nature and type of risk involved. For instance, health risks can't be tackled in the same way as the risks involved in the transportation of hazardous substances, and the risks associated with a space projects are to be dealt in a different way from those risks encountered in construction projects. One of the most effective and appreciated method of managing risks in the construction projects is through transfer of risk to insurance firms.

A academic research conducted to determine the insurance requirement of public bodies, involves the factors which the insurance companies have been carrying out. The information about current practices was obtained by personally interviewing the representatives of construction firms and by reviewing the specifications. The outcome of the research conducted can be used by contractors to understand the factors that affect their insurance premiums in a better way. It also revealed that significant differences lie among the state insurance requirements.

In order to reduce the risk of certain types of financial losses during the construction of the project, it may include the agencies which bound the contractors to maintain certain kinds and levels of insurance. Except from the insurance required contractually, many other types of insurance are available to the contractors to cover any loss of approx. Since construction is not cheap, it is usually expensive and budget ranges from millions to hundreds of millions, once you decide and take a decision, you can't avoid its outcomes. A doctor can bury his mistakes but an

engineer has to face the results. Thus, the decision of choosing the right type of insurance requires special consideration. The objective of this research paper is to examine the types of insurance required by various state and local agencies. From the perspective of insurance companies, other relevant factors will also be explored which are related to the purchase of insurance, and which affect the cost of insurance.

1.2 Background

Construction does not always occur in accordance with the plans; errors occur, people get injured, property damages, acts of God or other incidents could hinder or stop the progress in the construction project. Accidents are frequent and often severe in Construction works due to the hazardous nature of these works. The number of persons dying, injuries and damage to property per year in building projects is very high. Large investments are involved in construction projects especially in public projects. Attachment of high capital investment in this business makes it more risky and it becomes challenging and more critical to manage financial affairs. Some of the methods involved in Risk controlling mechanism used by Contractors and clients are Insurance and Surety. Construction insurance is a rendered a fine method of handling risks in the construction projects.

Construction insurance has an important and improving role in deciding the success of building projects. However, this practice of construction insurance many times does not receive the level of commitment and attention which it deserves because contractors and other decision making body involved has a lack of understanding of risk management and allocation, and the leading strategy of construction risk management using insurance. Same is the case here in our country. Insurance practices are inadequate to reach the standards. Currently, there is very less usage of construction risk management and construction risk insurance of any form in the construction industry of Pakistan. Contractors, design professionals and clients do not have the knowledge about the positive outcomes of Construction Insurance and Risk management. People are unaware with Construction Risk Insurance and its processes. . Certain other kinds of insurances are also available to compensate for any loss of approx. Purpose of this paper is to study the types of insurance required by various enforcing agencies at local or state level.

Besides, some of the relevant parameters from a perspective of insurance companies affecting the purchase and cost of insurance are to be explored.

1.3 Significance

A Google search will show many definitions of the term 'insurance'. Basically, insurance is a contract between an insurance company (the insurer), which in exchange for consideration (money or a premium), agrees to compensate the loss upon the destruction or injury of something in which the client (the insured) has an interest. Insurance policies are a shelter for the client, the contractor and design personnel from the loss occurring during construction projects. Each member is to provide a different insurance that provides shelter during and after the completion of construction projects. Out of the main two types of available construction risk insurances, mostly the owner is responsible for providing property insurance (covers property and equipment) and liability insurance (covering the loss arising from damages or hazards) is given by the contractors/design personnel.

Risk Insurance serves as a risk management tool. Contractor, owner, and Sub-contractor are the major parties in a construction project. They have varying point of views on risk, as per their own interests and position. The risk should be managed by the person who is in the best position to manage it. But in the current scenario, the responsibility of managing the risks associated to the construction projects lies with the contractor. It is the contractor's decision whether he wants to retain, reduce, transfer or avoid risk.

The contractor tries to transfer the risk related to unforeseen circumstances through Risk Insurance which is not in common practice in the construction industry of Pakistan. These unforeseen circumstances bear a serious risk of damage to life, assets and material etc. This study is focused at mentioning the contractual aspects of Construction Risk Insurance practices in Pakistan. A set of beneficial recommendations will be prepared from this study to point out and to remove the lacking of today's practices of Construction Risk Insurance in Pakistan

Moreover, it is being anticipated that the data collected from this research and the recommendations may become a step forward in highlighting improvements in Construction Risk Insurance practices and contract clauses. Hence providing a tool for better risk management

and uplifting of the Construction Insurance practices. The study may also provide valuable information for academic research in future.

1.4 Motive behind the Study

Two main types of insurances in construction industry are ‘Liability Insurance’ and ‘Property Insurances’ which are available and practiced. For construction owners, contractors and design professionals, liability insurance will typically come in the following forms: Typical forms of ‘Liability Insurance’ for owners, design consultants and contractors are: workers’ compensation insurance, professional liability insurance, general liability insurance and automobile liability insurance.

Construction Risk Insurance is not deeply rooted in Construction industry of Pakistan. Only five types are offered even and number of contractors/ client securing policies for these types of CRI is very low. A lesser research work on Construction Insurance is a big reason behind lesser Construction Risk Insurance practices in Pakistan. It is anticipated that this study will help in making the Risk insurance practices better as a risk management tool.

Due to lack of knowledge and motivation, contractors don’t pay attention to CRI. Hence, it leads to lesser risk management measures in our construction industry. Moreover, not significant work has been done in this field and it surely is a field that must grow. We chose this issue to work on as our final year project to:

- Help in Better Risk Management
- Information for Academic Research in future

1.5 Objectives

As mentioned previously, managing risk through insurance is one of the most effective way. Unfortunately, insurance practices in our construction industry are not up to the mark. Firstly, only a handful of types are being offered by insurance companies out of which the acceptance rate is even lower. The purpose of conducting this study and survey is to know the ground

realities for this ill practice and to come up with a conclusion, along-with recommendations.

Main objectives of our study are:

- To study the current Construction Insurance clauses in Pakistani Contracts and their provision.
- To compare these with Construction Insurance Clauses and practices in the contracts of the construction industries of the countries like China, UAE and with clauses for Construction Insurance provided in FIDIC.
- To carry out a survey from contractors regarding current clauses and practices of Construction Insurance, in order to improve the Insurance practices as Risk transferring tools in the construction industry of Pakistan by changing the contract clauses accordingly.

2. LITERATURE REVIEW

2.1 General

Construction risk Insurance is a contract between Insurance Company (The Insurer) and the contractor/ client (The Insured). The Insurance Company, in exchange for consideration, promises to make payments upon the injury to someone or accident on the construction site or loss to something in which client/contractor has an interest. The Insurance Company agrees to compensate financially and gives some benefits, on the occurrence of specified event that involves some uncertainty about whether or when it'll happen.

Construction Risk Insurance is used as a risk transferring tool usually by the contractor to minimize the risk related to construction projects. According to Richard H. Clough (1986), Risk Insurance serves as a risk management tool. It is a method that can be used by the contractor to transfer the risk of unforeseen circumstances/accidents. These circumstances can have a potential risk that may cause damage to life, material, property and equipment. Contractor, owner, and Sub-contractor are the major parties involved in a construction project. These have different views, according to their own background and interests, on risks. Although the risk should be dealt by the party which is in the best condition to handle the risk. But in the current scenario, the responsibility of all the risks associated to the construction projects lies with the contractor. It is the contractor's decision whether he wants to reduce, retain, transfer or avoid risk.

Methods usually used by contractors to transfer the risk associated with the construction are:

- Construction Risk Insurance, Risk is transferred to Insurance companies;
- Subcontracting, Risk is transferred to subcontractors;
- Modification in contract conditions, risk is transferred to Client and other parties.

(Chapman and Ward, 2003; Liu and Flanagan, 2005)

2.2 Definitions:

This topic includes the some basic definitions of the terms that are constantly used on the topic of Construction Risk Insurance.

2.2.1 All Risks Insurance:

This is the insurance against physical damage to the approximately all type of works and materials on site. All Risks Insurance covers the full estimated value of works and a mark up for the overhead costs such as Professional and Consultancy fees.

Contractors usually obtain global All Risk Policies that cover all of their projects and it makes All Risk Insurance policies more cost effective and easily maintainable for contractors. The risk in the works is transferred to the employer once he/she takes over. It is needed from the employer to make sure that these works are insured adequately. Usually defects are not included in All Risk Insurance policies but once can purchase wording from the Insurer who provides cover for damages to the other parts of works caused by that defect according that wording. All Risk Insurance is only available if works are being carried out in accordance with well established techniques of construction, damaged caused due to the use of evolving techniques is not covered under All Risk Insurance generally. It is usually obtained and maintained by the contractor under the joint names of contractor and owner and is usually termed as Contractor's All Risk Insurance (CAR).

2.2.2 Professional Indemnity Insurance:

Professional Indemnity Insurance provides contractors against the liability which arises out of negligence in profession especially under D&B Contracts where responsibility of design lies with contractor. Usually this policy responds when design does not meet the requirements of undertaken contract.

This insurance policy is not made on the basis of the occurrence of professional duty's breach instead it is made on the basis of making of claim. The Professional indemnity insurance generally remains in place until the end of its limitation period. Limitation period is 10 years in UAE. The complexity and nature of design works determines the cover that a contractor needs to have in place for Professional Indemnity Insurance. This cover varies on case to case basis. This

cover includes a contractual liability which is equal to the potential damage due to professional negligence. The basic purpose of professional indemnity policies is to cover risk and liability that arises due to negligence in professional services and their provisions. However, some of the professional indemnity policies offer additional covers to counter the financial frauds. This insurance is required to maintain by professionals who owe design responsibility to their employer e.g. engineers, architects, consultants and the building contractors. This is why the most important insurance policy that is required from the design consultants to have in place is Professional indemnity insurance.

2.2.3 Public Liability Insurance (OR) Third Party Insurance:

The persons such as members of the public or independent sub-contractors, who are not related directly to the project, are known as third party. The contractor's employees are not included in third party and their damages are covered by Workers Compensation Insurance. Public Liability Insurance covers for the liability that arises out of death or injury to third party or damage to the property and belongings of third party before the undertaking of works by the owner. Public liability insurance is also named as Third Party Insurance.

2.2.4 Workers' compensation insurance (WCI):

WCI provides cover to the contractor against liability which arises due on site deaths or personal injuries to its employees during the course of works. WCI provides workers with replacement of wages and medical benefits if they get injured or ill during the course of employment. It also insures the contractor against his employee's right to sue him for inadequate safety measures and breach of duty/ failure to provide the required standard of care. WCI also provide benefits for dependents of the workers who get killed due to accidents or illnesses that are related to work. WCI sometime also cover the liability arising due to the death or injury of a worker due to negligence of co-workers.

2.2.5 Delay in start-up insurance (DSU):

If contractor is not given a relief under the contract, he/she has to pay liquidated damages to the owner if he/she fails to complete the works/project by the end of the date of completion. Also, liquidated damages are paid by the contractors if the final product doesn't meet the output criteria already set under the contract for determining the nature and quality of

the works. Caps are provided to contractor as a percentage of the total price of the contract for these types of damages. These caps sometimes don't fully compensate the owner for the actual loss suffered by him. However, sometimes caps for delay damages are set aside but this an expensive, uncertain and prolonged process. Due to this reason, Owners/employers usually obtain DSU insurance in order to compensate for damages caused by the start-up and other delays in the completion and taking over of works.

2.2.6 Insurance against Force Majeure:

The insurance against force majeure events covers for the damages that are caused the events that are defined as act of God. These events are out of control of the contractor and usually cause financial loss that arises out of inability to bring the project to a successful completion. This policy covers for the delays due natural disasters like earthquakes, fire, revolutions and riots, wars, floods and epidemics. This policy is acquired by a very less number of contractors and usually provides coverage to the contractors working in foreign countries for the potential damage due to the risk that arises out due to unforeseen political events.

2.2.7 Insurance against Damages to Works and Equipment:

The equipment being used at the construction site and construction works being carried out at the construction sites can have inherent defects and they are usually exposed to natural calamities. This insurance policy covers the potential risk of damage to the works and equipments being used by the contractors on site. The losses which arise out of accidental breakdown of almost any type of equipment being used by the contractor are covered by this policy. It provides and All Risk coverage for the potential damages to the equipments and works which means that indemnification will be provided in case of any on-site, unforeseen and sudden loss or damage to the works and equipment that occurs during the period for which Insurance is obtained by the contractor. Equipment damages usually occur due to short circuits, careless and unskillful operators or any other accidents that occurs on site.

2.2.8 Decennial Liability Insurance:

Under the laws of most of the countries like UAE etc, Architects, contractor and design consultant etc. are liable for any fault/defect which arises safety and stability concerns to the building and/or a total or partial collapse of a building. This liability of contractor to the employer remains there usually for a time period of 10 years starting from the day on which employer takes over the works, this type liabilities are named as Decennial Liabilities. Decennial Liability insurance is often taken out by contractors to cover these liabilities as these can't be excluded from the contract.

2.2.9 Wrap-up Insurance:

Wrap-up Insurance policy usually provides covers to all contractors and subcontractors working on a large & Mega Projects. The net contractual worth of these projects usually exceeds \$10 million. Wrap-up Insurance usually encompasses all of the insurances of the contractors and subcontractors working on a mega project and is usually obtained in the joint names of owner, contractors and subcontractors.

2.2.10 Amount of Insurance:

Amount of Insurance is the total amount which is paid by the Insured to the Insurance Companies in the form of premiums until the successful completion of the duration of the policy.

2.2.11 Duration of an Insurance Policy:

The time period for which Insurance Company and the insured mutually agree to the terms of an Insurance Policy is known as Duration of that Insurance policy.

2.2.12 Amount of Coverage:

The amount of cover an insured gets in case of any loss/damage against which he/she has obtained Insurance Policy. It is the amount paid by the Insurance Company to compensate for any loss/damage against which insured has obtained an Insurance policy.

2.2.13 Occurrence Percentage:

The percentage of the claims made against an Insurance Policy is known as occurrence percentage of that policy. It is the percentage of the accident that cause that type of damage/loss against which insured has obtained an insurance policy.

2.2.14 Deductibles:

The minimum threshold for the financial loss against which Insurance Company agree to provide cover. If case of a loss which is less than this threshold, the Insured doesn't get any type of coverage from the Insurance Company.

2.3 Facts about the use of CRI in Pakistan:

In 2008, a study was done by Farrukh Arif and others, based on the responses from a sample of Insurance Companies of Pakistan. The Sample contained 21 Insurance companies out of which only 10 companies (response rate 48%) were found valid for analysis. This study was based on the current practices of Construction Risk Insurance by the Insurance Companies. However, this study didn't contain any perspective or point of view of the Construction Companies and Contractors. The results of the study showed that some of the types of Insurance (along with their percentages with respect to a survey from Insurance Companies) used in construction industry of Pakistan are shown in the table 2-A.

Table 2-A Type of Insurances use in Pakistan

Type of Insurance	Percentages
General Liability Insurance	90%
Professional Liability Insurance	90%
Contractor's All Risk Insurance	70%
Workers Compensation Insurance	80%
Equipment Coverage	80%

Other types of insurance like Public liability Insurance, Wrap-up Insurance program for Construction project, Decennial liability insurance and delay in start-up Insurance etc. are in common practice in the neighboring countries usually in middle-east. And also, Construction Risk Insurance practices in the countries like China, UAE etc. are on a higher node as compared to those in Pakistan. The results of the above mentioned research clearly describe that though Insurance mechanism for risk management exists in Pakistani construction industry up to some extent but practices of this mechanism are not deeply rooted in the industry

Currently, there is very lesser use of Risk management and CRI in Pakistani construction industry. Contractors and clients do not have the knowledge about the positive outcomes of Construction Insurance and Risk management. The motivation is lacking in contractors to transfer the risk to insurance companies because most of the large and medium projects in Pakistan are funded by the Governments. These governments are the owners of these projects and responsibility for the losses (if any) lies with them. So contractors usually don't pay attention to Construction Insurance and its policies because the governments usually repay any losses incurred. Even if they secure insurance policies, this is to fulfill the requirements of the contracts clauses and laws of construction instead of their own interests of mitigation of risks associated to construction activities. However, Insurance is used in Construction Industry of Pakistan usually for the privately funded large construction projects but on a smaller scale as compared to International Standards.

3. METHODOLOGY

3.1 General

In order to achieve the goals and objectives of the study, the research methodology was divided into following steps:

- Planning Phase
- Literature Review
- Data Collection
 - Questionnaire
 - Survey
- Results and Analysis
- Conclusions
- Recommendation and Educational Outcomes

3.1.1 Planning Phase:

First of all we searched out for the valid options for the research and a number of emerging topics were there. Out of the those topic we decided to choose Construction Risk Insurance because

- There is a lack of research in this topic.
- CRI is an emerging tool of risk controlling mechanism.
- CRI is not practiced country wide due to lesser research on the topic.
- This research can open the window to future researches on the topic.

3.1.2 Literature Review:

In this phase a thorough literature review was done in order to study the current practices and Insurance related Clauses in the Construction Contracts of Pakistan. These clauses were compared with the clauses of Insurance in the FIDIC. This helped in getting a guide map for assessment of the current practices of Insurance in Construction Industry of Pakistan. Relevant

researches on the topic helped in determining the course and scope of the project. Rest of the Literature review is explained above in Chapter 2.

3.1.3 Data Collection:-

Data Collection phase was further divided into two new phases

- Preparation of Questionnaire.
- Survey

3.1.3.1 Preparation of Questionnaire:

The literature review helped in developing a questionnaire to evaluate and assess the current construction risk insurance practices. The questionnaire was intended to provide data that would sustain statistical rigor about the CRI practices. The Questionnaire was prepared by

- A thorough study of the current Construction Insurance clauses and their provision in Construction Contracts of Pakistan and
- Their comparison with Construction Insurance Clauses provided in FIDIC.
- Thorough Literature Review on the topic.

A checklist of insurance requirements was developed after reviewing The Clauses of Insurance and their provisions in Construction contracts of Pakistan. Questions relating to these requirements were developed in an attempt to address all insurance aspects of the general conditions of the specifications.

- Is Liability Insurance required before beginning work?
- What type of extended coverage is necessary?
- Is WCI required?
- Is All Risk Insurance required?
- Is Third Party Insurance required?
- Any other insurance required?

This Questionnaire includes the questions that were asked from the contractors in order to determine the current practices of CRI in Construction Industry. The Questionnaire mainly inquired about following information:

- Name and Designation of the person who is filling it and the Name of the Organization for which he is working.
- Type, Expected Duration and Estimated Cost of the Project on which he is working.
- Why using Construction Risk Insurance?
- Level of CRI practices in the country as compared to International Standards.
- Type of Insurance Policies obtained for the above mentioned Project.

Total of following six options for the selection of the type of Insurance policies they obtained, were provided to the Contractors.

- Workers Compensation Insurance
 - All Risk Insurance
 - Third Party Insurance
 - Insurance against Force Majeure
 - Insurance against Damages to Works and Equipment
 - Others
- Amount of Insurance, Duration of Policy, Occurrence Percentages, Amount of Coverage and Deductibles for the each type of Insurance obtained by the contractor.

The Questionnaire was developed in two modes:

➔ **Manual Print Copies:**

The manual print copy was the main type of questionnaire developed initially. This was meant to be filled by hand. The distribution and collection of the Questionnaires was by also hand through personal visits to the sites and offices of different construction companies. A sample of Manual Print copy is attached in the figure (3-A)

→ Questionnaire:



A study being carried out by students of MSU Institute of Civil Engineering

Construction Risk Insurance (CRI) practices in Construction Industry of Pakistan

Construction Risk Insurance is a tool that helps in managing risk related to construction projects effectively. Your kind response to this questionnaire will help us in getting information about the current practices of construction risk insurance in Pakistan and to get the suggestions from the construction industry about risk insurance to improve Construction Risk Management.

For further details contact: Syed Saad Mateen Shah

E-Mail: saadmateenshahqillani@gmail.com

Mobile: +923005465427

Name: _____

Organization Name: _____

Designation: _____

Type of the Project:

- Infrastructure Project
- Building Project
- Hydropower Project
- Any other Project _____

Estimated Cost of the project (ranges):

- less than 50 lacs
- 50 lacs to 2 crores
- 2-10 Crores
- 10-30 Crores
- 30-50 Crores
- More than 50 Crores

Expected Duration:

- Less than 1 year
- 1-3 years
- 3-7 years
- Greater than 7 years

Do you think CRI practices are up to the mark in Pakistan? Yes No

Comments _____

Have you obtained Insurance policies for this project? Yes No

Why Construction risk insurance? (You can choose more than one option)

- To compensate for any loss or damage.
- To mitigate the risks.
- To fulfill the contract requirements and obligations.
- Any other _____

Figure 3-A (a)

Type of insurance policy	Amount of Insurance (PKR)	Duration of Policy	Amount of coverage (PKR)	Limitations to this policy	Occurrence %	Deductibles (optional)	Benefits
Workers Compensation Insurance							
Third party Insurance							
All risk Insurance							
Insurance against Force majeure							
Equipment and works damage Insurance							
Others (please mention the type)							
	Any suggestions:						

Figure 3-A(b)

➔ Google Forms:

The Google Form of the questionnaire was developed in order to distribute the questionnaire easily via internet. These forms were easily distributed to the companies working

in the distant areas of the country. The ease of filling this form was kept in mind at the time of its preparation.

3.1.3.2 Survey:

A random survey from a large number of contractors from all over the country will be carried out using above mentioned Questionnaire. This will help in assessing the current CRI practices in construction industry of Pakistan. And the results of this survey will help in preparation of a healthy set of recommendations for the improvements in the current practices of CRI.

Through thorough literature review, we came to know that our research will be focusing on two sectors of construction Industry. These sectors can be differentiated from each other on the basis of the type and nature of Construction Contracts that are being practiced in the country.

→ Government Contractors/ Public agency Projects:

In the first sector, there were public agency projects that were running under the standard specification of state departments, major municipalities and local governments. The contracts for these projects didn't have any specified clauses for Construction Risk Insurance. While in the second sector, there were projects from Public and Private sectors. On these projects registered firms were working under the specified conditions of contract which were extracted from FIDIC books. The insurance related clauses and their provisions were part of this kind of projects. Information on provisions for insurance related clauses on public agency projects was obtained by reviewing the standard specifications of state departments and major municipalities. These specifications were obtained from the relevant Department. It was important that the agencies that were considered should have different functions, because different functions would likely require varying types of insurance. However, in this type of projects there were no provisions for Construction Risk Insurance.

→ Projects in Public and Private Sector:

For the Second Sector, the information on provision of Insurance Related clauses on Public and Private sector projects were obtained by reviewing the contract documents and standard form of bidding for Projects that are running currently in the public as well as private

sector. These contracts were following the FIDIC books. Hence, Insurance clauses were necessarily provided and enforced for the acquisition of the contract.

The next thing was distribution of these Questionnaires and collection of responses. The questionnaires were distributed using two medium:

➔ **By hand distribution and collection of Manual Print Copies:-**

The actual Questionnaire was developed in the form of manual print copy. The manual print copies were distributed and collected by hand by making various personal visits to the construction sites and offices of the professional. The responses collected were in the form of hard hand written manual. It was a bit difficult to compile these results. However these visits and results helped in guessing the trends with respect to practices of Construction Risk Insurance that were being followed in the Construction Industry of the country.

➔ **Distribution of Google Forms via Internet:-**

The Google Form of the Questionnaire was also developed in order to make sure the easier and faster distribution as well as collection. These forms were distributed via Internet using email and social media etc. The link of the form was forwarded randomly through emails to more than 350 professionals from all across the country. Sometime people were reluctant to fill the manual copies so the link of this form was forwarded to those people in order to collect maximum responses. By using Google doc, it was easier to access data from far cities like Karachi & other far-flung areas. Google doc was very helpful in accumulating data. It was most fastest & authentic way possible to get the information needed. Google doc also helps in evaluating the data. It make analysis easy and concluding the results into graphs & histograms. It also helps in getting the percentage of the insurance practiced in construction Industry in Pakistan. Responses to this form were submitted online and results generated were in the form of Pie Charts. This was an easier way as results generated through this medium were utilized directly.

The sections for the feedback and suggestions from the contractors were also provided in both types of Questionnaire. These feedbacks were encouraging and also the issues being faced by contractors were highlighted through these feedbacks.

Results and Analysis, Conclusion and Recommendation stages of the methodology will be explained in the coming chapters.

3.2 Limitations:-

There are many limitations in exercising this methodology in this research.

1. The major limitation of the survey was deciding the sample size.
2. Results were collected from all over the country from different government agencies with different insurance specifications.
3. Results were obtained from different projects of different nature. As every project has its own nature & complexities. Projects vary in cost, foundation, geotechnical conditions etc.
4. The perspective and point of view of Insurance Companies is not included in the research as the scope of our project was just assessing the contractual aspects of Construction Risk Insurance.
5. One major limitation was varying rates of Insurance Companies and different criteria of each company for premium calculations due to absence of uniform policy and standard laws about CRI in the country.
6. People were reluctant to fill the Questionnaire manually.
7. Amount of Coverage and Occurrence Percentages of the Insurance claims were held confidential by some of the Companies/contractors.

4. RESULTS AND ANALYSIS

4.1 General

So a random survey was carried out from all across the country to have a know how of the current CRI practices in The Construction Industry of the country. The sample size was not determined because the projects of various natures were running all across the country. The distribution among different types of the project was on random basis so a random set was selected as sample. Well 350+ emails, 50+ visits to the construction sites and offices, a number of Social Media messages and Phone calls resulted in a total of 56 projects. Out of these 56 responses, 36 projects were there from the Public and Private sector. These projects had provisions for the CRI clauses in the contracts. And rest of the 20 projects were taken from the Public agency type projects that were running by government contractors and these projects didn't have any provision for Insurance clauses. Results and responses to other question are explained below.

4.2 Type of the Projects

We got information about a total of 56 projects. These projects were from different fields of construction and their type, the nature and contract types were varying randomly. However, the distribution among the different project types was basically targeted because the type of the project majorly affects the type of the contract and contract clauses. Type of a project governs the selection of the types of the CRI policies that are required to be maintained by the contractor. The distribution among the different type of projects is shown below in form of the pie chart (Figure 4-A)

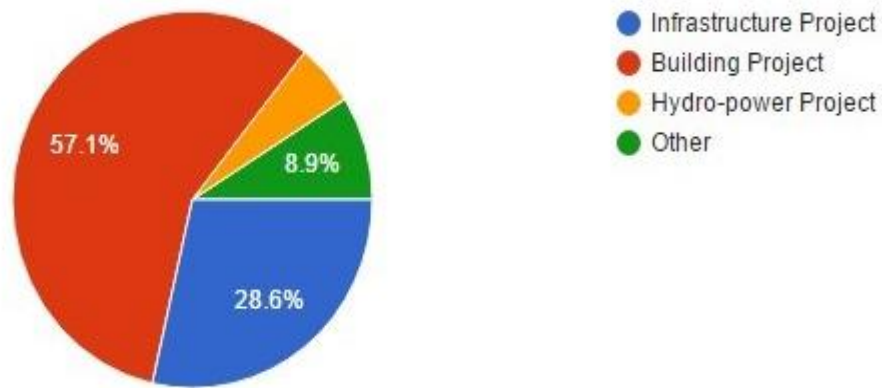


Figure 4-A Type of project

4.3 Expected Duration of the Projects

The expected duration of the project is the expected days that a project takes for its completion. The expected duration of the project is defined in the contract initially and it affects the duration, type and extension of Insurance policies effectively. So the distribution among different ranges for the expected duration is shown in the form of pie chart. (Figure 4-B)

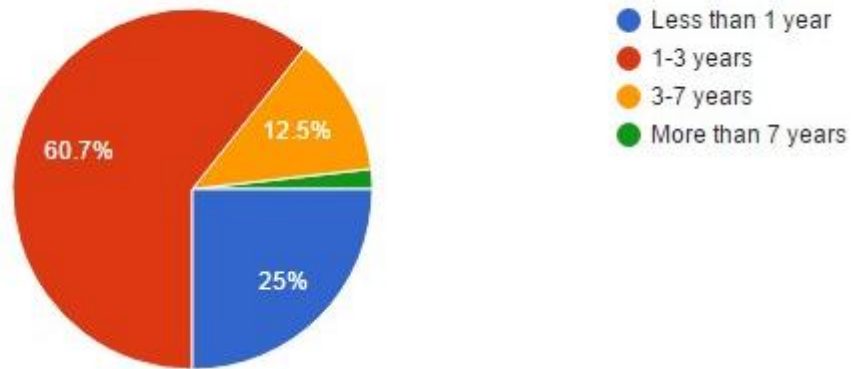


Figure 4-B Expected Duration of project

4.4 Estimated Cost of the Project:

Estimated cost of the project is the total cost that is expected to be incurred during the course of the project. Estimated cost of a project basically defines the amount of premiums for an insurance policy because insurance policies are usually offered as a percentage of the total cost of the project. This also governs the selection of the type of an insurance policy for a project. The distribution among different ranges of estimated cost of the projects is shown in the form of a pie chart (Figure 4-C).

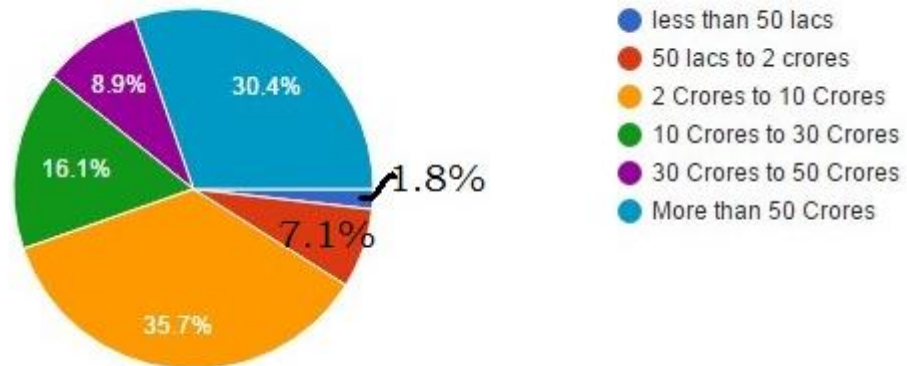


Figure 4-C Estimated Cost of the Project

4.5 Construction Risk Insurance policies for the Projects:

So in this section of the questionnaire, we had three questions for every respondent.

These questions and their answers/responses are listed below

1. Have you obtained CRI policies for the Project?

Out of 56 responses there were only 20 projects for which Contractors obtained CRI policies. Rest 64.3% projects were the ones for which Contractors didn't obtained any Insurance policy.

2. Why Construction Risk Insurance?

75% of the respondents said that they obtain CRI policies only to fulfill the Contract requirements for the acquisition of the project while 25% said they obtain CRI policies to compensate for their losses and to transfer the Risk.

3. Do you think CRI practices in Pakistan are up to International Standards?

87.5% of the respondents simply said no. Hence, it became obvious that CRI practices are not up to international standard in Pakistan.

The detailed type of project, duration of the project and types of Insurance obtained for those 20 projects for which contractors obtained CRI policies are given in table(4-A).

Table 4-A Estimated Cost, Expected Duration and Type of CRI obtained

S.No.	Estimated Cost of the project (ranges)	Expected Duration of project (ranges)	Insurance Types
01	More than 50 Crores	3-7 years	All risk Insurance
02	More than 50 Crores	3-7 years	All risk Insurance
03	More than 50 Crores	3-7 years	Third Party Insurance
04	More than 50 Crores	3-7 years	Third party Insurance
05	More than 50 Crores	1-3 years	1. Workers Compensation Insurance 2. All risk Insurance 3. Equipment and works damage Insurance 4. Third party Insurance
06	More than 50 Crores	1-3 years	All risk Insurance
07	More than 50 Crores	1-3 years	Equipment and works damage Insurance
08	More than 50 Crores	1-3 years	All risk Insurance
09	More than 50 Crores	1-3 years	Third party Insurance
10	30 Crores to 50 Crores	1-3 years	1. Workers Compensation Insurance 2. Equipment and works damage Insurance
11	30 Crores to 50 Crores	1-3 years	1. Workers Compensation Insurance 2. Equipment and works damage Insurance
12	10 Crores to 30 Crores	3-7 years	1. Workers Compensation Insurance 2. Equipment and works damage Insurance
13	10 Crores to 30 Crores	3-7 years	Insurance against Force majeure
14	10 Crores to 30 Crores	1-3 years	1. All risk Insurance 2. Third party Insurance
15	10 Crores to 30 Crores	1-3 years	1. Workers Compensation Insurance 2. All risk Insurance 3. Equipment and works damage Insurance 4. Third party Insurance
16	2 Crores to 10 Crores	1-3 years	All risk Insurance
17	2 Crores to 10 Crores	1-3 years	1. Workers Compensation Insurance 2. All risk Insurance 3. Equipment and works damage Insurance 4. Third party Insurance
18	2 Crores to 10 Crores	1-3 years	Equipment and works damage Insurance
19	2 Crores to 10 Crores	Less than 1 year	1. Workers Compensation Insurance 2. Equipment and works damage Insurance
20	50 lacs to 2 crores	Less than 1 year	All risk Insurance

4.6 Types of CRI Policies:

Those 35.7% of the respondents, who obtained CRI policies for their projects, were asked about the types of the Insurance Policies they obtained. So the distribution among different types of insurance is shown in the form of pie chart. (Figure 4-D)

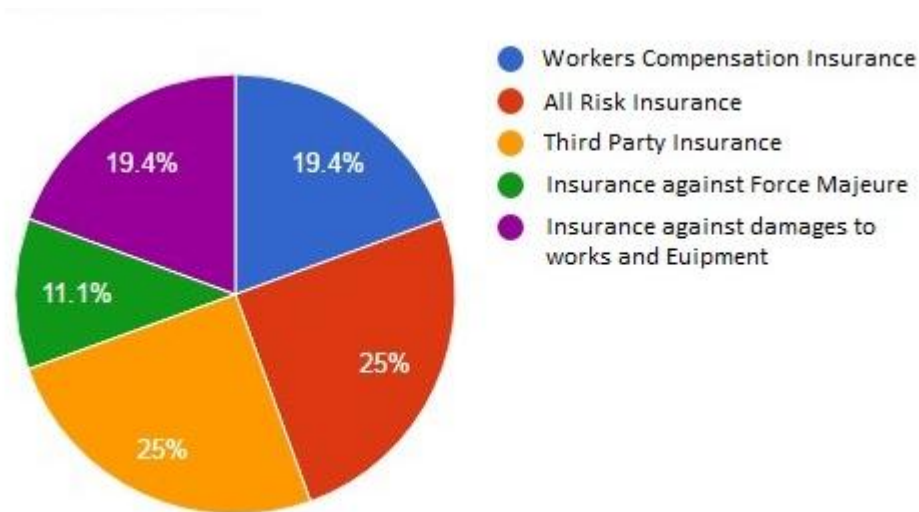


Figure 4-D Type of Insurance

However, the percentage for each type of Insurance with respect to number of projects for which that type of Insurance is obtained by the contractors, are shown in the table 4-B:

Table 4-B Types of Insurance (Obtained by Contractors)

Type of Insurance	The number of projects for which this type is obtained. (%age out of 20)
Workers Compensation Insurance	35%
All Risk Insurance	45%
Third Party Insurance	45%
Insurance against Force Majeure	20%
Insurance against Damages to Work and Equipment	35%

4.6.1 Workers Compensation Insurance:

Workers Compensation Insurance policies were obtained for only 35% projects (7 out of 20). However for this type of Insurance, the distribution of the amount of insurance is shown in the form of a pie chart (Figure 4-E).

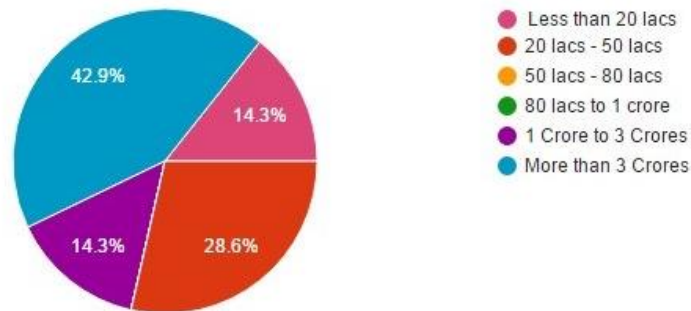


Figure 4-E Total amount- WCI

Duration of the WCI policy was 1 to 3 years for 85.7% of the responses and less than a year for 14.3% of the responses. Amount of Coverage of the WCI policy was less than 40% for 83.3% of the responses and 40 to 60% for the rest of the 16.7% responses. Occurrence Percentage of the claims for compensation of loss was less than 5% for 66.7% of the responses and 5 to 10% for rest of the 33.3% responses.

4.6.2 All Risk Insurance:

All Risk Insurance policies were obtained for 45% projects (9 out of 20). Distributions for Amount of Insurance for All Risk Insurance are shown in the form of pie chart (Figure 4-F).

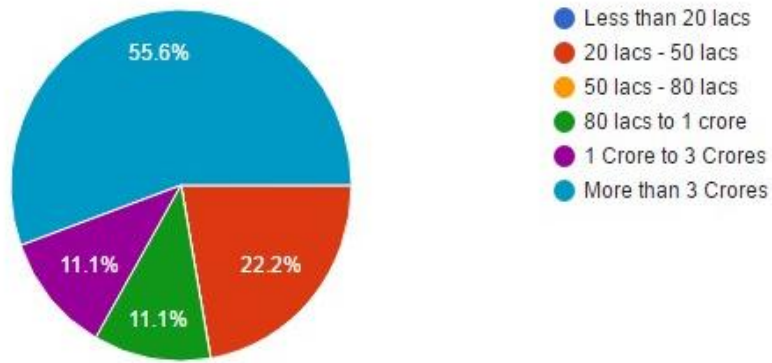


Figure 4-F Total amount of Insurance- All Risk Insurance

Distribution for the duration of the policy for All risk Insurance is shown in the form of pie chart (Figure 4-G).

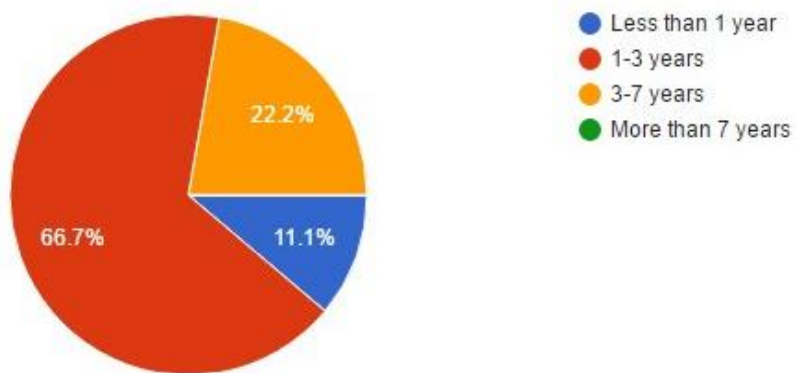


Figure 4-G Duration of Policy- All Risk Insurance

Amount of Coverage is shown in the form of pie chart. (Figure 4-H)

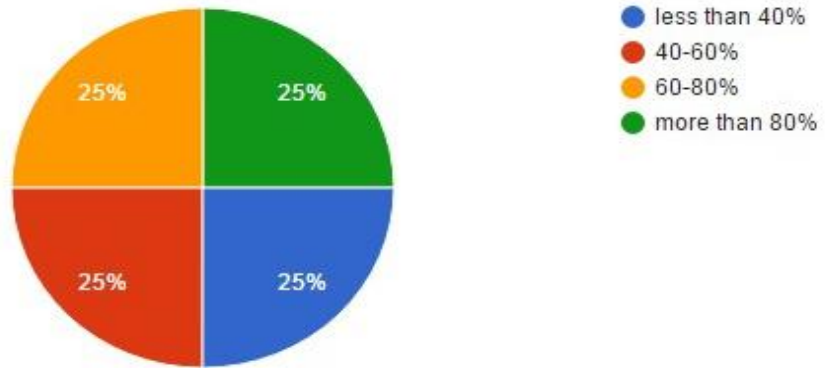


Figure 4-H Amount of coverage- All Risk Insurance

Occurrence Percentage is shown in the form of pie chart (Figure 4-I).

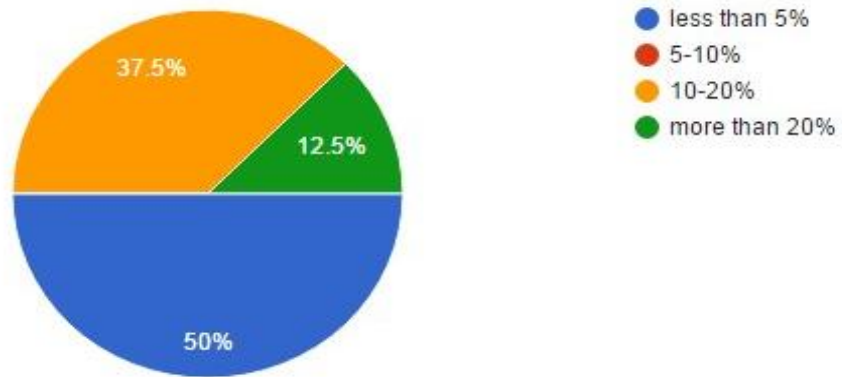


Figure 4-I Occurrence Percentage- All Risk Insurance

4.6.3 Third Party Insurance:

Third Party Insurance Policies were obtained for 45% projects (9 out of 20). The distributions for the Amount of Insurance are shown in the form of pie chart (Figure 4-J).

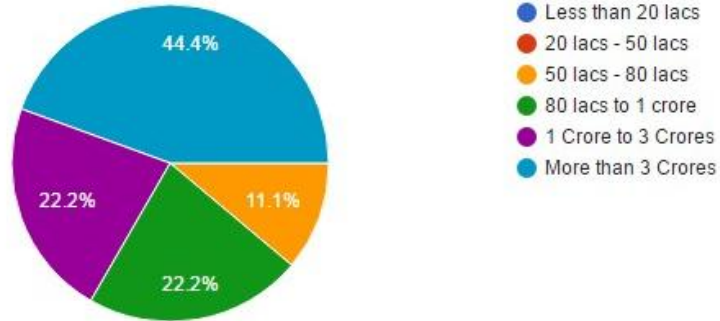


Figure 4-J Amount of Insurance- Third Party Insurance

Distributions for the Duration of Third Party Insurance Policies are shown in the form of pie chart (Figure 4-K).

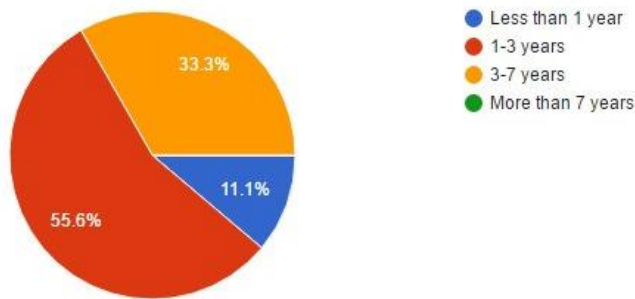


Figure 4-K Duration of Policy- Third Party Insurance

Distributions for Amount of Coverage for Third Party Insurance are shown in the form of pie charts (Figure 4-L).

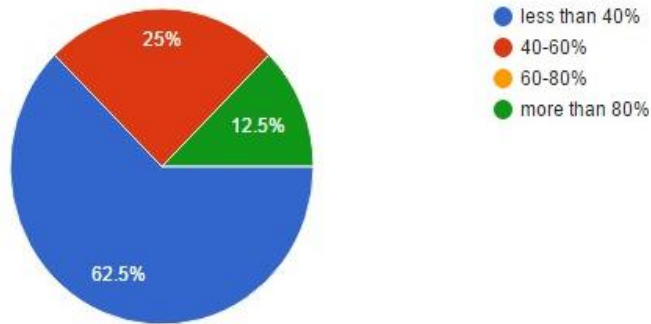


Figure 4-L Amount of Coverage- Third Party Insurance

Occurrence Percentage of the claims for the compensation of loss of the third party was less than 5% for 55.6% of the projects and 5 to 10% for the rest of the 44.4% project.

4.6.4 Insurance against Force Majeure:

Policies for Insurance against Force Majeure event were obtained for 20% projects (4 out of 20). The distributions for the Amount of Insurance for this type of Insurance are shown in the form of pie charts (Figure 4-M).

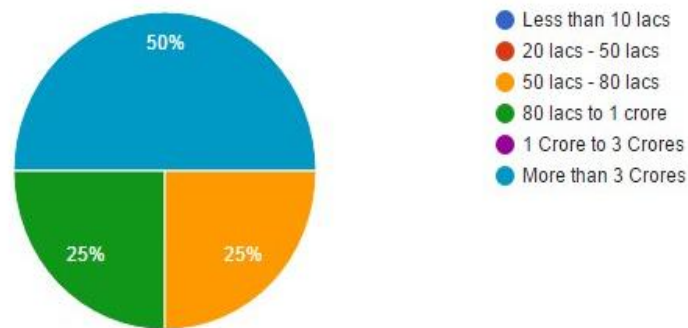


Figure 4-M Amount of Insurance- Insurance against Force Majeure

The Duration of policy was 1 to 3 years for all 100% of the responses. The Occurrence Percentage of the claims for compensation of loss due to Force Majeure events was less than 5% for the 75% of the responses and 5 to 10% for the rest of the 25% responses. The distribution for the Amount of Coverage for Insurance against Force Majeure events is shown in the form of a pie chart (Figure 4-N).

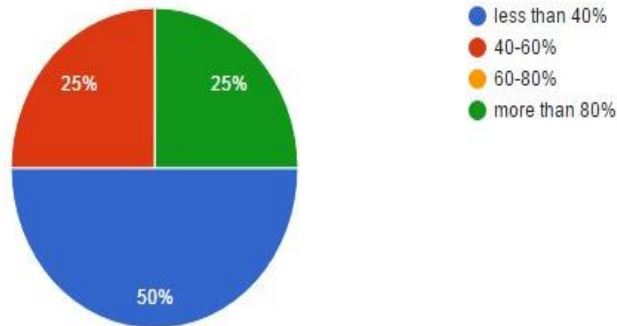


Figure 4-N Coverage Amount- Insurance against Force Majeure

4.6.5 Insurance against Damages to Works and Equipment:

Policies for Insurance against Damages to Works and Equipment were obtained for 35% projects (7 out of 20). The distribution for the Amount of Insurance for Insurance against Damages to Works and Equipment is shown in the form of pie chart (Figure 4-O).

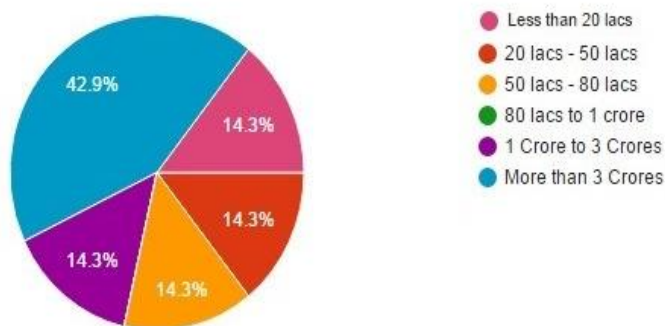


Figure 4-O Amount of Insurance- Insurance against damages to Works and Equipment

The Duration of policy for Insurance against Damages to Works and Equipment was less than one year for 14.3% of the projects and 1 to 3 years for rest of the 83.7% of the projects. The Amount of Coverage for the Insurance against Damages to Works and Equipment was less than 40% for the 83.3% of the responses and 60 to 80% for the rest of the rest of the 16.7% responses. The distribution for the Occurrence Percentage of the claims for the compensation of loss for Insurance against Damages to Works and Equipment is shown in the form of pie chart (Figure 4-P).

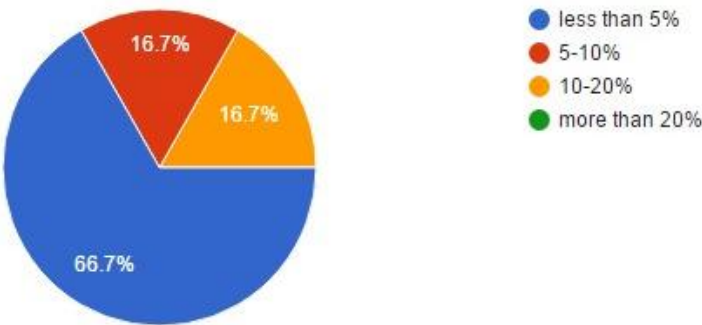


Figure 4-P Occurrence Percentage- Insurance against damages to Works and Equipment

5. CONCLUSIONS

The findings of the study are:

- ➔ CRI is not deeply rooted in Construction Industry of Pakistan.
- ➔ The responsibility of handling the risks usually lies with contractors under current conditions.
- ➔ There are hardly few operating companies in Pakistan having risk insurance.
- ➔ CRI practices in Pakistan are not up to the International Standards.
- ➔ Depending on the location, scope and other related factors, contract must include required insurance clauses.
- ➔ In Pakistan, Construction risks and Construction Risk Insurance are not even considered by the contractors in most of the cases because of:
 - Lack of Knowledge.
 - Lack of Motivation.
 - Lesser Use of Risk Management.
 - Source of Investments in Projects (is government).
 - Insufficient Construction Risk insurance clauses and their Provision in Contracts.
- ➔ CRI and Risk Management are not employed in Pakistan though their use may help in mitigating the risk.
- ➔ Most of the Contractors secure CRI policies to fulfill the requirements of standard contracts and construction laws.
- ➔ There has not been any State Legislation towards enforcement of Insurance Policies in public or private sector.
- ➔ The connection and linkage between the Insurance Companies and Contractors is weak.
- ➔ Contractors claimed that heavy amounts are charged by the Insurance Companies as premium.
- ➔ Claims procedure for the compensation of loss is lengthy and expensive.
- ➔ The amount of coverage provided for compensation of loss is inadequate.

6. RECOMMENDATIONS AND EDUCATIONAL OUTCOMES

6.1 Recommendations:

The recommendations from the research are:

- ➔ The responsibility of handling the risks should lie with the party which is in best position to handle it.
- ➔ Awareness seminars and training workshops should be held by Insurance Companies and Law Enforcing Authorities.
- ➔ Attractive packages and offers should be made by the Insurance Companies in the form of incentives.
- ➔ Obtaining the insurance should be made compulsory in all types of projects especially those projects that come under Provincial Governments.
- ➔ The current insurance clauses in the contracts should be revised.
- ➔ Connection and interaction between Insurance Companies and contractors can be made stronger by conducting seminars and training workshops.
- ➔ The claims procedure for coverage and compensation of losses should be improved.
- ➔ The criteria of Insurance Companies for the premium calculations should be revised.
- ➔ Employing the risk managers should be made compulsory for the registered firms.
- ➔ A similar study should be carried out to know perspective of the Insurance Companies.

6.2 Advantages and Educational Outcomes:

Advantages and Educational Outcomes of the study are:

- ➔ Improving the CRI practices may lead to a better risk management mechanism.
- ➔ Improving the CRI practices will increase the efficiency of the Construction Industry in the country
- ➔ This research will open the window to the future academic researches related to the topic.
- ➔ Current CRI practices and loop holes in the system were identified. This research can be continued in order to improve the system.

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