

## **Chapter 3 : Methodology**

### **3.1 Scope of Study**

The scope of study for this research was limited to the Hong Kong Construction Industry. In consider to achieving quantity and quality research result, three surveys were proceeded against various roles that relevant to the construction industry. They were contractor group and non-contractor group and independent professionals, which might have direct impact and indirect impact under the restriction of multi-layers subcontracting strategy respectively.

The non-contractor here means the concerned parties other than construction contractor, they must actively involve in the construction field and their works are affecting the operation of the Hong Kong construction industry. They include the construction works departments of the Hong Kong Government, educational organizations, engineering consultants and associations, safety consultants and associations and the employees and employers associations.

### **3.2 Identification of the Target Populations**

The following groups of population were considered to have sufficient coverage and representation of the whole construction industry:

#### **3.2.1 Type A Population – Contractor Group**

The Group C contractors in the List of Approved Contractors for Public Works in Hong Kong were selected as the first target survey population group. Any contractors wishing to carry out government contracts must be registered on the list

from the Work Bureau, Government Secretariat. The Group C contractor means the contractors who can tender for public works contracts of any values exceeding HK\$50 million (Works Bureau 2000).

The reasons for selection of the Group C contractor be the target population are,

- 1) To assure the reliability of the research result; the Group C contractor is the largest contractor group in Hong Kong which would usually act as principal contractor and adoption of subcontracting practice, it could be considered as the most representative samples for the survey.
- 2) After consultation to the local supervisor and experienced researchers, it was supposed that the questionnaire's return ratio of the Group C contractor would be comparatively higher than small size contractor groups due to its size and reputation.
- 3) To provide a tidy and clear pattern of the survey.

The whole Group C Contractors in the List of Approved Contractors for Public Works, which containing 125 contractors would be approached by questionnaire survey.

### 3.2.2 Type B Population – Non-Contractor Group

The type B population includes of :

- 1) Relevant Works Departments of the Hong Kong Government
  - 13 numbers of Government Departments which included the Works Bureau, Labour Department, Marine Department, Housing Department, Building Department, Territory Development Department, Highways

Department, Drainage Services Department, Architectural Services Department, Civil Engineering Department, Electrical and Mechanical Services Department and Water Supplies Department.

2) Educational Organizations

- 7 numbers of the local Universities
- The Construction Industry Training Authority
- The Vocational Training Centre
- The Occupational Safety and Health Council

3) Engineering Consultants / Associations

- Engineering consulting companies
- Professional engineering associations

4) Safety Consultants / Associations

- Safety consulting companies
- Health and Safety associations

5) Employees and Employers Associations

- The Hong Kong Construction Association
- Labour Union organizations

The reason for selection the above parties to be the second target population is because of they are working closely with the construction industry, their works are affecting the operation of the industry. Although restricting the multi-layers subcontracting practice might not have direct impact to them, their objective points of view regarding to the multi-layers subcontracting are also important, which shall be taken into consideration too.

A total number of 125 non-contractor populations would be sampled by questionnaire survey. The overall sampling size for the whole questionnaire survey (Type A & B) was  $n=250$  for providing quantitative information.

### 3.2.3 Type C Population – Independent Professionals in the Construction Industry

The professionals in the construction industry who have not involved in both type A and B questionnaire survey were selected as the third target population group for the research. They were named as independent professionals that including of the project managers, consulting engineers and safety professionals who working surround the researcher's organization.

The reason for type C population is to provide objective and qualitative information based on the findings of the questionnaire survey. 15 numbers of the type C population would be approached by interview survey.

## 3.3 **Data Collection (Survey Instrument)**

### 3.3.1 Questionnaire

Upon reviewed of relevant literatures, two sets of questionnaire had been designed to collect quantitative data. The first set of questionnaire – Questionnaire (Type A) which contains 20 questions were designed for the population of contractors. The first eleven questions purposed to collect background information of the participants and the remaining 9 questions to investigate the perception of the participants in regards to the multi-layers subcontracting practice of the Hong Kong construction industry.

The second set of questionnaire – Questionnaire (Type B) was designed for the population of non-contractors, which contains 10 questions. The first question was designed for the classification of the participants and the remaining 9 questions are

same as the last nine questions of the Type A questionnaire which purposed to investigate the perception of the participants in regards to the multi-layers subcontracting practice of the Hong Kong construction industry.

Prior formal commencement of the survey, the local supervisor and the peer group of the researcher were invited to fill in the draft questionnaires as pilot run for assessing the answering time, format and validity of the questionnaires. Some questions and format of the draft questionnaires were revised a few times in consideration of the feedback from them. The revised questionnaires became more simple and concise which take only ten minutes to finish.

Both questionnaires adopted closed-end questions in order to provide clear and simple format for the participants to handle (Burns 1997). Samples of them are shown in the Appendix 1. The questionnaires were addressed to the General Manager or Head of the Department of the target populations by post. A cover letter which shown in Appendix 2 for explanation of the researcher's background and the nature, purpose, method and confidentiality of the study were posted to the populations together with the questionnaire and a return envelope.

The participants were requested to fill in the questionnaire by about two weeks time. They should complete the questionnaire and return it to the researcher by the enclosed stamped and self-addressed envelope.

### 3.3.2 Interview

Upon completion of the questionnaire survey, the collected data would be preliminary analyzed to find out the norm based on the result of the questionnaire

survey. The type C population would than be invited to participate in a face to face interview to provide objective views and explanation to the identified industry norm.

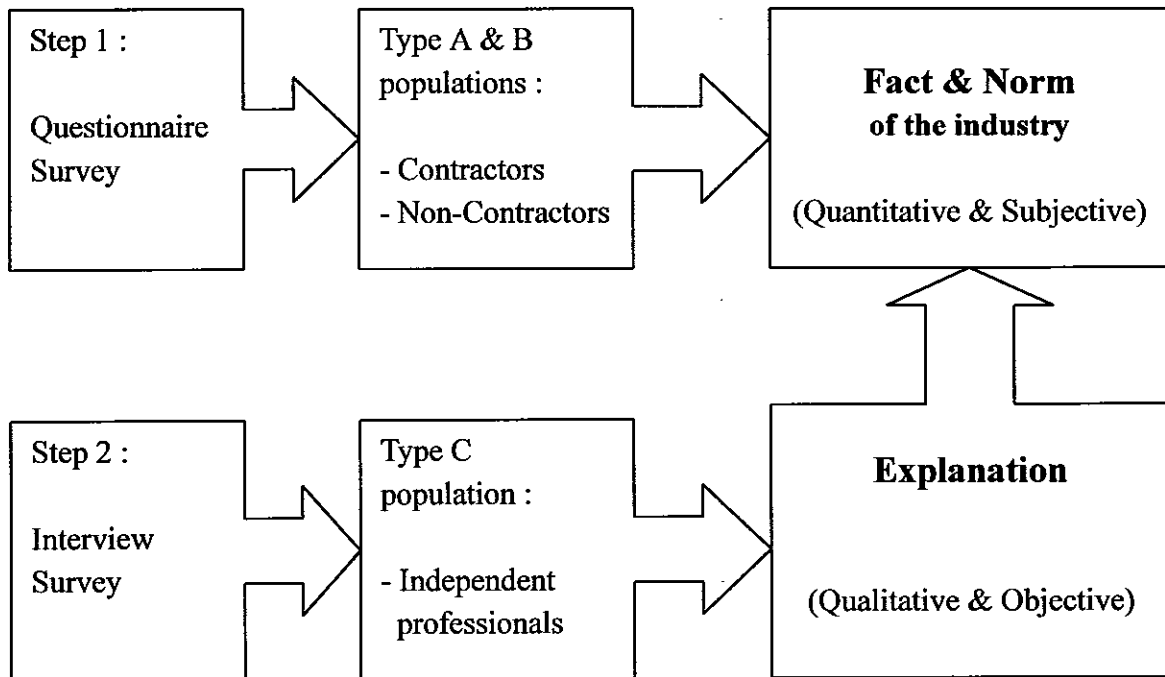
An interview schedule which containing six open-end questions was prepared for the interview. Before the interview, a clear explanation of the purpose, method and confidentiality of the study were given to each participant. Participants were also advised on their freedom in agreeing to participate, answer questions and discontinue at any time, consent would be obtained before conducting the interview. Each participant was interviewed individually at their construction sites, which took about 15 to 30 minutes to finish. A sample of the interview schedule is shown in Appendix 3.

### **3.4 Data Analysis**

All data collected from the returned questionnaires was treated and analyzed by the statistical computer software SPSS. Mathematical and graphical methods were used to analyze the trend and correlation among the accident record and different factors, and to explore the perception of the industry in regards of the multi-layers subcontracting practice. While analyzing the data provided by type A and type B participants, it would be considered that both types of data have equal weighing for the research.

The results of the interview would be treated and used for the discussion section, which located at chapter 5 of this research report. The raw results of the questionnaire survey are shown in appendix 4 and a summary of interview is shown in Appendix 5 for reference.

### 3.5 Research Design



**Figure 1 – Research Design**

### **3.6 Summary of the Implementation Processes for the Survey**

1. Identify the scope of study and the target population groups,
2. Design of survey methods,
3. Preparing of questionnaires,
4. Conduct pilot run for the questionnaires, modify the questionnaires where necessary,
4. Sending questionnaires to Type A and B populations by mail,
5. The target populations complete and return of questionnaires,
6. Preliminary analyze the returned data by SPSS,
7. Identify the fact and industry norm,
8. Interview to the Type C population for explanation the identified industry norm and provide recommendations,
9. Analyze all collected data and prepare of research report.