

Chapter 2 : Literatures Review

2.1 Safety Performance of the Hong Kong Construction Industry

It is generally acknowledged that poor safety performance of the Hong Kong construction industry is an unenviable fact. From the accident data shown in Table 1 which provided by the Census & Statistics Department (1999), the construction industry had highest fatalities and accident rate than other industries in Hong Kong such as the manufacturing industry, catering, transportation, storage, communication and utilities industry in the past ten years.

Furthermore, Lo (1997) found that the construction industry accident rate was exceptionally high in Hong Kong, the fatality rate was 10 times higher than UK, 8 times than USA, 4 times in Japan and 2 times than in Singapore. It indicated that the safety record of the construction industry not only worse than other industries in Hong Kong but also the neighbour countries, thus construction should be one of the most important target areas of study for accident prevention in Hong Kong.

Table 1 – Industrial Accident Figures and Rates of All Industries and Major industries
1989 – 1998.

Major Industries		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Construction Industry	No. of Accident	26399 (59)	25138 (58)	23115 (54)	18815 (48)	16573 (80)	16422 (51)	15268 (63)	16469 (51)	18559 (41)	19588 (56)
	Employment	70505	71113	63450	62232	56226	59710	65611	74907	81629	79007
	Accident Rate	374.43	353.49	364.3	302.34	294.76	275.03	232.7	219.86	227.36	247.93
Manufacturing Industry	No. of Accident	24621 (12)	22650 (10)	19800 (8)	16313 (8)	12337 (5)	10706 (7)	9189 (6)	7205 (9)	7196 (4)	6334 (2)
	Employment	808232	741366	665441	582199	511415	440179	388772	335177	306510	263714
	Accident Rate	30.46	30.55	29.75	28.02	24.12	24.32	23.64	21.5	23.48	24.02
Catering Industries	No. of Accident	N.A. N.A.	N.A. N.A.	N.A. N.A.	15138 (1)	12356 (2)	12750 (1)	12536 (0)	12417 (0)	13069 (0)	13011 (0)
	Employment	-	-	-	189593	186392	190002	183846	188239	186350	176140
	Accident Rate	N.A.	N.A.	N.A.	79.84	66.29	67.1	68.19	65.96	70.13	73.87
Other Industries	No. of Accident	5443 (11)	5595 (10)	5583 (9)	5077 (8)	5531 (5)	4286 (8)	4008 (8)	4160 (6)	4481 (13)	4101 (10)
	Employment	92288	96800	126431	132971	136502	144480	148774	154979	151503	145891
	Accident Rate	58.98	57.8	44.16	38.18	40.52	29.67	26.94	26.84	29.58	28.11
All Industries	No. of Accident	56463 (82)	53383 (78)	48498 (71)	55343 (65)	46797 (92)	44164 (67)	41001 (77)	40251 (66)	43305 (58)	43034 (68)
	Employment	971025	909279	855322	966995	890535	834371	787003	753302	725992	664751
	Accident Rate	58.15	58.71	56.7	57.23	52.55	52.93	52.1	53.43	59.65	64.74

Notes : N.A. = Not available

() = Fatal cases

Other industries include transportation, storage, communication and utilities.

Source : Census & Statistics Department 1999

2.2 Subcontracting Practice of the Hong Kong Construction Industry

Recent studies of (Wong 1999; Lee 1996; Wong 2000b) have all commented that the high accident rate of the Hong Kong construction industry was related to the multi-layers subcontracting system. When a contractor secured a project from a developer, it would break down the project activity into different trades or work natures and then sublet them to several subcontractors. Considerable proportions of jobs in the construction industry are actually performed by subcontractors. Lai (cited in Lee 1991) found that the number of subcontractors in one construction site might ranged from 17 to 54, the structure and size of them were simple and small. The principal contractors' direct labour force in a project was small, the subcontractors' workforce might actually carry out construction work without the knowledge of the principal contractor. Managing safety is a problem in terms of communication and monitoring.

The multi-layers subcontracting practice is a serious problem in the Hong Kong construction industry. Mr. Lee K.M., one of the Legislative Councilors in Hong Kong commented that "subcontracting was normal worldwide in construction projects. However, we are not talking about contracting out two or three times, but six to seven times." The most extreme case that he had experienced was subcontracting to 15 layers (1999b p.3). It reflected that excessive subcontracting has existed and the problem has serious. Capp (1973) pointed out that the common failure was arising from lack of direction and supervision of subcontractors' workers. Rowlinson (1999) found in his study for the Hong Kong Housing Authority that average 84 percent of workers injured from 1995 to 1998 were subcontractors' workers. He further commented that subcontractors' workers tend to have less training and less awareness of safe working practice.

2.3 Problems of Subcontractors

The structure of subcontractors are commonly simple and small in size, Lee (1996) made the point that financial resources of many small firms were meagre, they had neither time nor inclination to keep abreast with legal requirements or technological developments in safety. Shaw (1998) found that the small business face specific health and safety challenges, many firms lack of adequate resources and were often struggling to survive. In the other hand, they lack an understanding of their obligations or the health and safety issues of their processes. However, Poon (1998) commented that the major cause of accident was because subcontractors were rewarded according to their work done that they were working under great time and reward pressures, which caused higher possibility of construction accidents.

2.4 Advantages of Subcontracting

However, the Secretary of Works of the Hong Kong Works Bureau (Lee 1999a), disagreed that the subcontracting practice was the major cause of poor safety performance of the Hong Kong construction industry. He further commented that the multi-layers subcontracting system was worth to exist in the market. The advantages of subcontracting practice have been enumerated by Wong (1997a). Subcontracting practice could be employed to cope with long term demand uncertainty, allowing the firm to avoid the employment of a stable workforce and investments in fix resources under conditions of the fluctuating demand, serving as an external buffering mechanism, absorbing uncertainties arising from availability of resources and operational conditions. In the other hand, the subcontracting practice provided sufficient resources support and allocation, the construction work's completion time could be shortens into minimum.

The Chairman of the Hong Kong Construction Association expressed that under the free society and market principle operates in Hong Kong, the multi-layers subcontracting practice was difficult to regulated. We should determine the real causes of the problem then to making improvement and balance of their advantages and disadvantages (Tse 2000).

2.5 Summary

Literature review has been conducted in order to consolidate the research direction in four concerned areas. It was shown that the safety performance of the Hong Kong construction industry was poor and much worse than other industries in Hong Kong and the neighbour countries. The subcontracting practice was excessive used which resulted in the multi-layers subcontracting that became the most serious problem in the Hong Kong construction industry. The problems of subcontractors were financial resources, lack of safety knowledge and the time and reward pressures. In the other hand, subcontracting practice has advantages that it can serving as an external buffering mechanism to absorb the uncertainties arising from availability of resources and operational conditions. Restriction of the multi-layers subcontracting should be careful considered in balancing its advantages and disadvantages.