



Rajamangala University of Technology Krungthep



THE UNIVERSITY OF TOKYO

Frontier Science Dept

Appraisal of Common Dispute Problems over Residential Building Projects in Hong Kong

By

Borvorn Israngkura Na Ayudhya, Ph.D.

Motivation

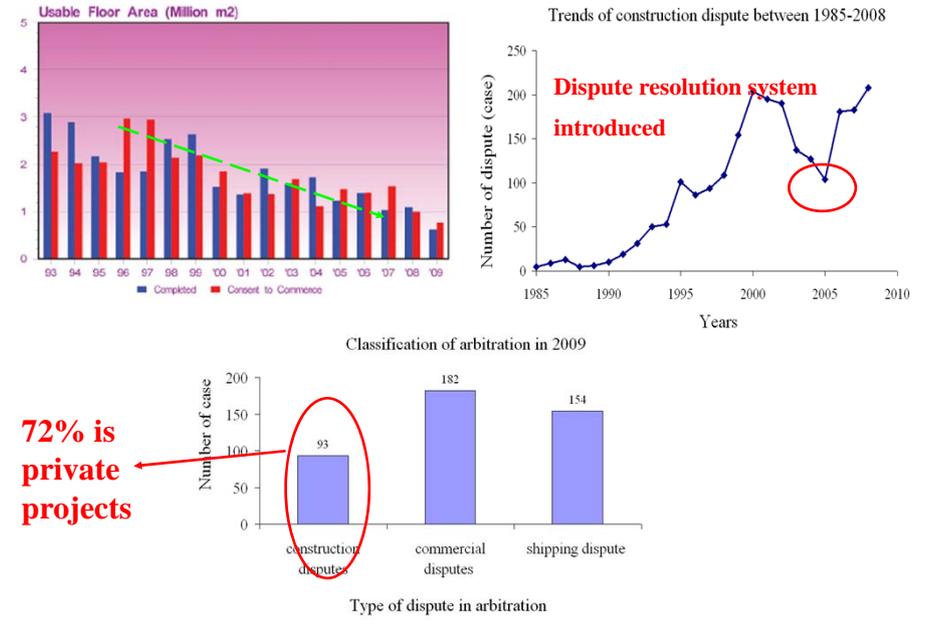
- Implementation of a multi-tiered system of alternative dispute resolution as a standard condition to avoid, at least mitigate, the threat of delay, cost escalations and overruns.
- Six years have been passed, multi-tiered dispute has been progressively introduced in government and private projects. Nonetheless, there are still several reports which have been indicated that dispute is one of the main causes of delay and leading to seek for settlement in court.
- Therefore, it is interested to appraisal and evaluation the dispute impact to success of the construction project. 2

Objectives

Identify and appraising the common dispute problems in residential building projects in Hong Kong

The realities and difficulties in solving dispute

Reality and Fact

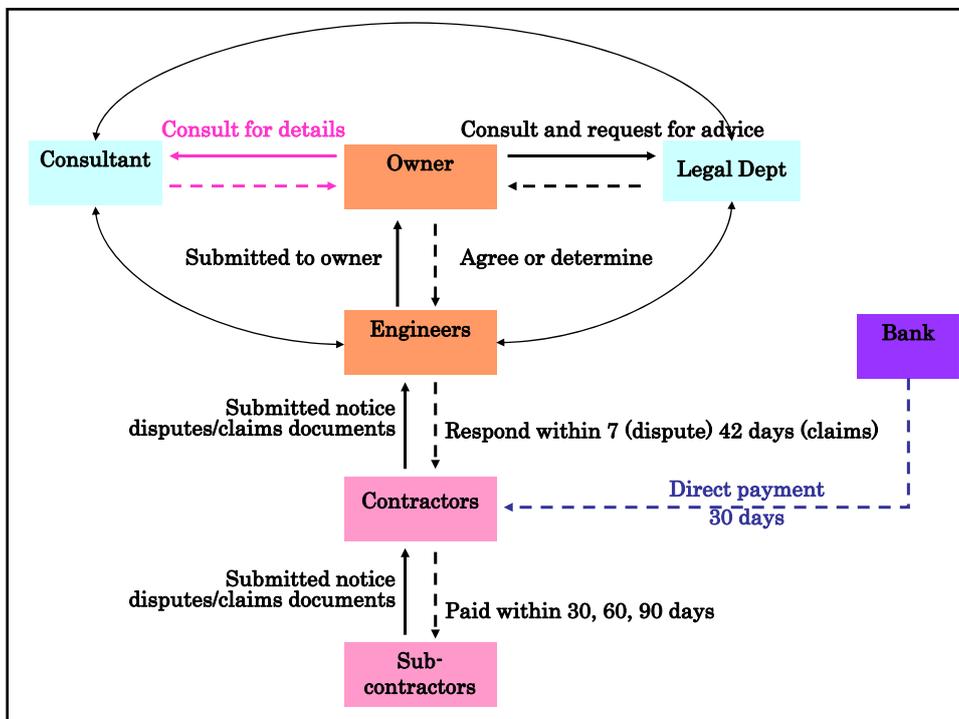
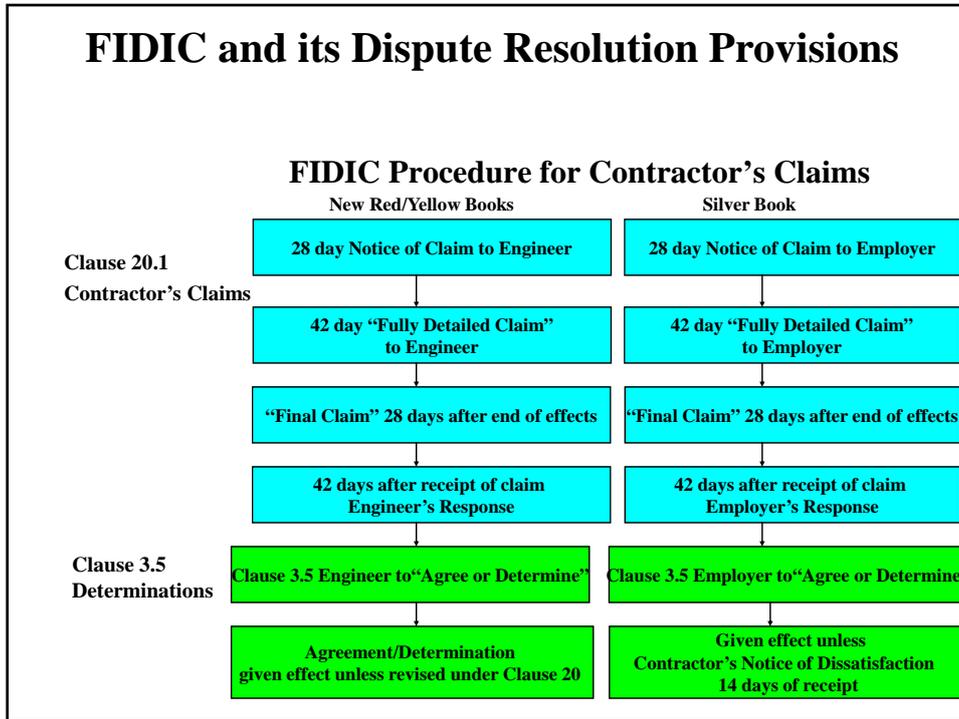


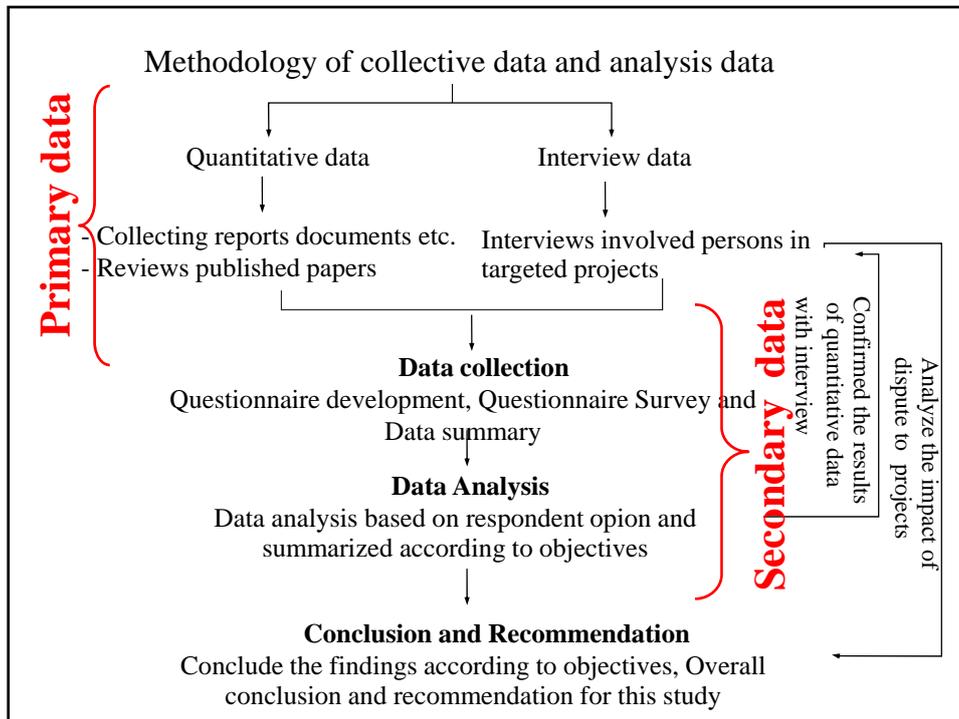
Staged approach disputes resolution



Source: Carmichael, 2002

FIDIC and its Dispute Resolution Provisions





Methodology of research

- Primary data was collected from various opened-access information which were in the form of documents, reports, rules and regulations, guidelines and procedure prepared by the government institutions/agencies and the consultants.
- Secondary data which were derived from questionnaires and interviews through owners, consultants, domestic and international main contractors. Their positions were director of **engineer, legal, procurement, accounting, budget administration department**, project managers, site engineers and top **executive** positions in private companies

Results

Table 1 Type of organization with their response rate

Organization	Number of questionnaires		Percentage return
	Sent	Return	
Contractor (Domestic)	75	66	88
Contractor (International)	50	41	82
Consultant	50	37	74
Total	175	144	82

Table 2 Type of residential construction works

Classification	No. of projects
Sky-high building	18
Storyed building	37
House	26
Detached house	14
Total	95

51 interviewees

Based on the response to the survey, a severity index was calculated to interpret the degree of seriousness effect of those problems. This index was calculated as follows (Dominowski, 1980)

$$\text{Severity index } (I) = \frac{(\sum_{i=0}^4 (a_i)(x_i))}{(4\sum x_i)} \times 100\% \quad (1)$$

where

a_i = constant expressing weight given to i th response: $i = 0, 1, 2, 3, 4$

x_i = variable expressing frequency of I

The response for $I = 0, 1, 2, 3, 4$ illustrated as follows:

x_0 = frequency of very often response and corresponds to $a_1 = 4$;

x_1 = frequency of often response and corresponds to $a_2 = 3$;

x_2 = frequency of moderate response and corresponds to $a_3 = 2$;

x_3 = frequency of not often response and corresponds to $a_2 = 1$;

x_4 = frequency of seldom response and corresponds to $a_1 = 0$;

Equation (1) was used to calculate the severity index for all disputes factors. The index was ranked and categorised into five levels.

The

Level 1: 0-15.5% is categorised as none severe;

Level 2: 15.5-38.5% is categorised as fairly severe;

Level 3: 38.5-63.5% is categorised as moderately severe;

Level 4: 63.5-88.5% is categorised as severe;

Level 5: 88.5-100% is categorised as most severe.

Table 3 Comparison severity index of main dispute category in residential construction projects

Overall	Responses					I (%)	Rank
	Most severe	Severe	Moderately severe	Fairly severe	None-severe		
Contract and specification	0	5	3	2	0	56.8	1
Financial	0	2	3	6	1	37.8	4
Environment	0	3	3	2	0	52.5	2
Other common	0	0	13	0	0	46.7	3
Total	0	10	22	10	1	48.45	

Table 4 Comparison severity index factors on residential construction projects

Issues	Severity index (%)	Rank	Overall rank
Contract and specification dispute category	56.8	1	
Insufficient working drawing details	70.7	4	7
Inaccurate bill of quantities	72.0	2	4
Inability of main contractor to sublet the contract during bidding	50.2	7	19
Government's policy on hand-over the construction site	23.3	10	37
Violating condition of the contract	66.0	5	10
Poorly written contract	71.4	3	6
Unrealistic contract durations	74.1	1	3
Mistakes and discrepancies in design documents	38.0	9	33
Change orders	48.6	8	20
Shop drawing approval	53.5	6	16

Issues	Severity index (%)	Rank	Overall rank
Financial dispute category	37.8	4	
Delay in progress payment by owner	77.4	1	1
Fiscal budget	14.6	12	43
Payment system of owner	21.2	8	39
Main contractor financial problems	54.3	4	15
Inflation	21.7	7	38
Exchange rate	30.9	6	35
Bank policies	17.4	10	41
Domestic payment procedure	20.1	9	40
Oversea payment procedure	16.3	11	42
Accuracy of project cost estimate	69.6	2	8
Evaluation of completed works	63.0	3	11
Fluctuation in materials cost and labour during construction	46.7	5	22

Issues	Severity index (%)	Rank	Overall rank
Environment dispute category	52.5	2	
Adverse weather conditions	57.5	4	14
Act of gods	66.5	3	9
Unforeseen problem underground	75.3	1	2
Inappropriate type of foundation	71.9	2	5
Noise pollution	41.5	6	29
Dust pollution	36.1	7	34
Approval environment assessing impact from local authority	46.2	5	23
Debris and construction junks	25.2	8	36

Issues	Severity index (%)	Rank	Overall rank
Others common dispute category	46.7	3	
Lack of communication between construction practitioners in project	62.0	1	12
Lack of skill labour and engineers	45.5	6	24
Slow in making decision from owner	40.1	12	31
Deficiencies in contractor's organization	42.9	7	25
Deficiencies in public agencies' organisation	42.2	10	28
Unexpected social events	42.4	9	27
Bureaucratic	40.8	11	30
Third party delays	42.5	8	26
Major accidents	39.4	13	32
Communication with engineers and main contractor	51.6	3	17
Unavailable of professional construction management	47.7	5	21
Poor quality of completed works	59.2	2	13
Poorly done planning and scheduling	50.7	4	18

Discussions

4.1 Contract and specification dispute category

Contract and specification dispute category was ranked as the highest overall dispute category among four main categories. The rate of severity was classified as moderately severe. These findings pronounced the need for the provision of evaluation of completed works must be monitored and improved.

Furthermore, change orders were a consequence of insufficient working drawing details, inaccurate bill of quantities and unrealistic contract durations which affect project durations during the execution of the project. This caused the dispute and delay between owner and main contractor. The main reason why considerable works had been frequently changed by most construction owners was due to sufficient time and effort were not spent at the preconstruction phase for feasibility studies, design and site survey and exploration.

4.2 Financial dispute category

Delay in progress payment by owner factor was ranked as the highest severity index dispute factor. This was due to natural of main contractors to concern about the cash flow in their account even though owner had a good reputation on punctuality of payment and already been granted for construction loan from banks. It was further found from interviewees that the payment was sometime delayed.

In times of recession and intense competition with low profit margins, owner had often had to depend on interest earned from delayed payments to main contractors. The progress payment was usually transferred to main contractor designated bank account within 14 days after all requested documents have been approved by authorised person. Failure to provide steady monthly progress payment to main contractor will cause agreed project objectives less carry output

4.3 Environment dispute category

Unforeseen problem underground dispute factor was the highest severity index in environment dispute category. In order to alleviate the issue, proper investigate on historic background of construction site should be deployed.

It was also worth to be mentioned that noise and dust pollution were becoming concern issue among construction practitioners in construction site where high buildings and dense residential place are located. Noise and dust might cause inconvenience for neighbours. Restricted time was given to main contractors. The discussion between local authority and main contractor can lead to serious dispute. Consequently, project can be further delayed. Therefore, comply with local authority in every single detail was a wise choice.

4.4 Other common dispute category

Other common dispute category was rated as moderately severe in residential construction projects. Construction practitioners ranked this dispute category as the 3rd highest overall dispute category from four main dispute categories. Lack of communication between construction practitioners in project factor was rated as highest priority concerned in others common dispute category. In order to alleviate the problems in this dispute category, owners and main contractors should carefully review all aspects of project in order to ensure that there was a minimum error.

Conclusions

1. This research has identified and classified 43 related factors of common interface dispute in Hong Kong construction projects. These common dispute issues are between owners and main contractors. The main dispute problems can be classified into 4 main categories: contract and specification, financial, environment and other common.
2. All main dispute categories and their related dispute factors were found to have frequency of very often to seldom response on the dispute factors among construction practitioners.
3. It can be further concluded that residential building construction projects were evaluated as moderately severe dispute with overall severity index of 48.45 percent.
4. Contract and specification dispute category was ranked as highest dispute category and followed by environment, other common and financial.
5. The delay in progress payment by owner factor was the highest severity index factor and followed by unforeseen problem underground, unrealistic contract durations, inaccurate bill of quantities and inappropriate type of foundation.

Recommendations

1. In order to minimise the dispute risks and burden costs of dispute impact, owner should also open-minded on introducing other type of contracts such as target cost contract, cost-plus-incentive-fee contract and design build and construction management.
2. Including, promoting and providing incentives to construction practitioners should be transplanted and faired if project can be early completed.

Acknowledgement

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Thank you