

REVAMPING RISK MANAGEMENT IN HONG KONG CONSTRUCTION INDUSTRY

Motiar Rahman and Mohan Kumaraswamy

Department of Civil Engineering, the University of Hong Kong, Pokfulam, Hong Kong

1. ABSTRACT

All construction project risks are not foreseeable, while the nature and extent of even commonly foreseen risks may change considerably with time. Despite increasing efforts to assign risks clearly and contractually on the basis of sound risk allocation principles, it appears that some risks are best managed jointly i.e. by synergising the experiential knowledge, resources and sustained efforts of all major project participants. The contractual flexibility needed to empower such joint and dynamic risk management (JRM) may be introduced through a co-operative 'Relational Contracting' (RC) framework.

Having outlined the theoretical basis for the above approach, its potential applications are discussed in the context of: (a) recommendations of the 1998 Grove Report on risk allocation in Hong Kong Government construction contracts, (b) the evident resistance to accepting some of those recommendations and (c) relevant recommendations of the 2001 Report of the high powered Hong Kong Construction Industry Review Committee. The case for JRM is strengthened by relevant findings from a preliminary survey of Hong Kong based practitioners, which are summarised in this paper.

2. KEYWORDS: Hong Kong, Joint Risk Management, Relational Contracting, Risk allocation.

3. INTRODUCTION

Risk and uncertainty are inherent in all construction projects irrespective of project 'size'. Factors influencing risk levels include project complexity, location, time available for design and construction, and familiarity with the type of work. Evidence from projects worldwide show that these risks are not being properly dealt with (Thompson and Perry 1992). Construction risks are allegedly allocated in the conditions of contract. But contract language alone is insufficient to clearly specify risk apportionment between the contracting parties. Different groups of contracting parties, as well as different members of the same group, interpret contract clauses in different ways (Hartman et al 1997). A clear 'meeting of minds' of the different parties appears necessary. Given the nature of the present construction industry as a very complex, high-risk, multiparty business, conflicts between the diverse participants need to be minimised through better relationships and co-operative teamwork (Dissanayaka and Kumaraswamy 1999).

Construction risks are often project-specific. As a project progresses, the nature and extent of risks may change, new risks may emerge and existing risks may change in importance or be re-allocated (Langdon 2000), because not all the risks are foreseeable at the outset. Some of these risks may also require the combined efforts of both contracting parties for their effective management. Flexibility in construction contracts is therefore necessary. Worldwide innovative initiatives (e.g. partnering and alliancing) to address these risks point to the need for revamped risk management and reinforce requirements for flexibility in contract conditions. Furthermore, since all possible risks are difficult to foresee at the outset, unforeseen risks need to be dealt with, using a proposed 'Joint Risk Management' (JRM) strategy that continues into the post-contract stage and for which provisions should be made in the contract conditions. Relational Contracting (RC) approaches can be mobilised to improve such relationships, team-working and JRM. RC encourages long-term provisions and introduces a degree of flexibility into the contract, by considering a contract to be a relationship among the parties, in the process of projecting exchange into the future (Macneil 1974, 1978, 1980).

This paper discusses (1) the basic principles of RC in establishing a theoretical basis for JRM, (2) potential applications of RC in the context of: (a) recommendations of the 1998 Grove Report on risk allocation and management in Hong Kong Government construction contracts (Grove 1998), (b) the evident reluctance to implement some of those recommendations, and (c) relevant observations from the Report of the Hong Kong Construction Industry Review Committee (CIRC 2001). Findings from a preliminary survey of Hong Kong based practitioners further reinforce the case for JRM.

4. RELATIONAL CONTRACTING (RC) FUNDAMENTALS

Relational (or Relationship) Contracting (or contracts) (RC) is a subject that originally attracted attention in the 1960's (McInnis 2000). It is based on a recognition of mutual benefits and win-win scenarios through more cooperative relationships between the parties. RC principles embrace and underpin various approaches, such as partnering, alliancing, joint venturing, relationship contracting and other collaborative working arrangements and better risk sharing mechanisms (Alsagoff and McDermott 1994, and Jones 2000). RC theories started with works by interdisciplinary researchers like Macaulay (1963), who observed that businessmen often fail to plan exchange relationships completely, and seldom use legal sanctions to adjust these relationships or to settle disputes. Planning and legal sanctions are often unnecessary and may have undesirable consequences. Transactions are planned and legal sanctions are used when the gains are thought to outweigh the costs. The powers to decide whether the gains from using 'contracts' outweigh the costs are held by individuals having different occupational roles. The occupational role influences the decision that is made. It implies that businessmen operate from a dynamic standpoint constantly pulled by contractual (legal), economic and behavioural forces. These situations were discovered as more pronounced in complex, lengthy and evolving transactions where the circumstances underlying the contract may change over time. It was felt that the need to maintain relationships is more important than the short-term gains seized by enforcing the appropriate contractual machinery. Construction contracts fit comfortably into that category (Alsagoff and McDermott 1994).

'Contract' is usually considered as 'promise' (or a set of promises) of doing something in the future, for the breach of which the law gives remedy, or the performance of which the law in some way recognizes as a duty. It presupposes that a contract is a discrete transaction, and the singular future of contract is based only on a promise-with-law. Macneil (1974) argues that the world of contract is not a world of discrete transactions; rather it is a world of relations, an ongoing dynamic state, no segment of which - past, present, future - can sensibly be viewed independently from other segments. It is not a world entirely of segmental personal engagements; rather it is one tending to engage many aspects of the total personal beings of the participants. Macneil (1974) sourced four primal roots of contract and argued that exchange is neither limited to discrete transaction, nor contract to promise (even promise-with-law). But contract is the projection of exchange into the future, a projection emanating from a 'social matrix' that is formed with the other three contract roots: (1) a 'sense of choice' and (2) an 'awareness of present and future' that lead people to constantly do things and to make plans knowing that those actions and plans will affect their future. When the actions and plans relate to (3) 'exchange', a temporal projection of exchange occurs; instead of all elements of all exchange occurring immediately, some, and perhaps all, will fall into place in the future.

Promise is the 'doing of something now', which affects the future by limiting choices, which would otherwise be available to the 'promisor' in the future. It clearly 'individualizes' each of the participants of an exchange as the power of 'human will' affects the future. 'Specificity' is therefore inherent in promise as no one can claim unlimited power to affect the future. Present 'communication' becomes meaningless to the 'promisee' if it is totally lacking specificity. Communication in turn is essential because of the division between the 'promisor' and the 'promisee'. Finally, the separation of selfish "me" and selfish "thee" and the presence of commitment, of specificity and of communication all guarantee that the promise-based exchange-projection will indeed be a measured reciprocity. Thus promise, as a projector of exchange, is "present communication of a commitment to future engagement in a specified reciprocal measured exchange" (Macneil 1974). But the future exchange and other future motivations arising out of dependence on ongoing exchange relations will cause exchange to occur in certain patterns, which are partially predictable and will continue. Such relational expectations, if firmly enough grounded in fact, assure "satisfactory" exchanges in future without need for present specificity, present communication or present measured reciprocity.

Contract transactions and contractual relations are different in that although both involve economic exchange, only the latter include whole person relations, relatively deep and extensive communication by a variety of modes, and significant elements of non-economic personal satisfaction. Macneil (1980) described contract broadly as the relationship among parties, in the process of projecting exchange into the future. Because not all the events can be 'presentiated' (perceived or realized at present), and as all the information needed cannot be 'presentiated' at the time of contracting, mutual future planning is required, leading parties to negotiation, because negotiation costs are less than higher premiums that may otherwise be incorporated in the bids of contractors, and also less costly than terminating contracts (Campbell 1997). However, no real life human cooperation will be found entirely transactional and lacking some whole person relations, some diffuse communication and some non-economic personal

satisfaction. Nor will contractual relations be found entirely lacking in transactional discreteness, if such lack of discreteness is indeed humanly possible (Macneil 1974). Accordingly, Macneil (1978) classified contracts into three types: classical, neoclassical, and relational. Classical contracting is described as market governance, neoclassical contracting involves trilateral governance (where third-party 'assistance' is employed in resolving disputes and evaluating performance), and RC is organized in bilateral (where the autonomy of parties is maintained) or unified governance (where the transaction is removed from the market and organized within the 'firm' subject to an authority relation i.e. vertical integration) structures (Williamson 1987).

Classical contract law is distinctive in that it attempts to facilitate the transaction by enhancing discreteness and intensifying presentation. The economic counterpart to complete presentation is contingent claims contracting, which entails comprehensive contracting whereby all relevant future contingencies pertaining to the supply of a good or service are described and discounted with respect to both likelihood and futurity (Williamson 1987). Classical contract law endeavours to implement discreteness and presentation in several ways. The identity of the parties to the transaction is treated as irrelevant; it corresponds exactly with the ideal market transaction in economics. Second the nature of the agreement is carefully delimited, and the more formal features govern when formal (e.g. written) and informal (e.g. oral) terms are contested. Third, the remedies are narrowly prescribed, so that "should the initial presentation fail to materialise because of non-performance, the consequences are relatively predictable from the beginning and are not open ended" and also third party participation is discouraged (Macneil 1978). The emphasis is thus on legal rules, formal documents, and self-liquidating transactions (Williamson 1987).

For long-term contracts executed under conditions of uncertainty, complete presentation is apt to be prohibitively costly if not impossible (Williamson 1987). Several kinds of problems arise. First, not all future contingencies for which adaptations are required can be anticipated at the outset. Second, appropriate adaptations will not be evident for many contingencies until the circumstances materialise. Third, when changes in circumstances are ambiguous, disagreement between the parties regarding their respective rights and obligations may give rise to claims and disputes. Faced with the prospective breakdown of classical contracting in such circumstances, three alternatives are available (Williamson 1987). One would be to forgo such transactions altogether. A second would be to remove those transactions from the market and organize them internally instead. Adaptive, sequential decision-making would then be implemented under unified ownership and with assistance of hierarchical incentive and control systems. Third, a different contracting relation that preserves trading but provides for an additional governance structure might be devised i.e. neoclassical contracting. According to Macneil (1978), two common characteristics of long-term contracts are the existence of gaps in their planning (i.e. contractual incompleteness) and "the presence of a range of processes and techniques used by contract planners to create flexibility in lieu of either leaving gaps or trying to plan rigidly". Macneil (1978) observes that third party assistance in resolving disputes and evaluating performance often has advantages over litigation in serving these functions of flexibility and gap filling. Williamson (1987) confirms that the following characterise neoclassical contract law: a recognition that the world is complex, that agreements are incomplete, and that some contracts will never be reached unless both parties have confidence in the settlement machinery. One key advantage of arbitration over litigation is that continuity (at least completion of the contract) is usual under the arbitration machinery; whereas relations are effectively fractured if a dispute is referred to litigation.

The pressures to sustain ongoing relations "have led to the spin-off of many subject areas from the classical, and later the neoclassical, contract law system, e.g. much of corporate law and collective bargaining" (Macneil 1978). Williamson (1987) maintains that progressively increasing the "duration and complexity" of contract has thus resulted in the displacement of even neoclassical adjustment processes by adjustment processes of a more thoroughly transaction-specific, ongoing-administrative kind. The fiction of discreteness is fully displaced as the relation takes on the properties of a "minisociety with a vast array of norms beyond those centred on the exchange and its immediate processes" (Macneil 1978). By contrast with the neoclassical system, where the reference point for effecting adaptations remains the original agreement, the reference point under a truly relational approach is the "entire relation as it has developed through time. This may or may not include an 'original agreement'; and if it does, may or may not result in great difference being given it" (Macneil 1978).

RC involves primary relations where intimate ties exist between the parties in terms of personal involvement (whole person, unlimited, unique and non-transferable), types of communication (extensive, deep, not limited to linguistic, informal in addition to or instead of formal) and in addition to the economic satisfaction, personal non-economic satisfaction is very important. Both exchanges and other factors are relatively difficult to measure and the parties do

not monetize (i.e. quantify) them. Its basic sources of socio-economic support are both internal and external to the relation. In relational contracts, the duration of a relation is long with no finite beginning and no end to either relation or performance. Relations tend to have gradual and indistinct beginnings, and to a lesser extent have similar diffused endings. Planning in RC may begin with focusing structures and processes of relations. Then the parties may approach future mutual planning in terms of completeness and specificity; sources and forms of mutual planning; bindingness of planning; and conflicts of interest in planning. So future cooperation is required in post commencement planning and actual performance. RC considers undivided sharing of both benefits and burdens. Relation itself develops obligations, which may or may not include genuinely expressed, communicated and exchanged promises of the parties. This relation is likely to be uneconomic to transfer, tends to encounter difficulties and is sometimes impossible. Finally, recognition of exchange by the parties are low, either party significantly expects altruistic behaviour from others, participants futurise the present, and the possibility of problems is anticipated as a normal part of relation that is to be dealt with by cooperation and other restorational techniques (Macneil 1974, 1978, 1980).

Lyons and Mehta (1997) found that modern organisations display an acute awareness of the costly hazards of opportunism and of the difficulties of organising exchange when the legal system is perceived to provide inadequate support for, and protection of, their interests. More informal relational contractual arrangements supply a reasonably efficient solution where recurrent transactions (e.g. claims, variation orders) require investments of specific assets and are accompanied by a high level of uncertainty. However, while non-legal enforcement mechanisms clearly play a major role in relational contracting of bilateral governance, legal mechanisms may also play a part in such exchange arrangements. Equally, more formal (i.e. classical and neoclassical) contractual arrangements are accompanied by an armoury of supportive non-legal mechanisms. This is seen in the present construction industry in practicing RC (e.g. through partnering): Project partners work as a team on the basis of a 'charter' that is not legally binding and if there is any problem the original contract will take precedence.

RC approaches appear useful in achieving the overall objective, which is to reduce the sum of production and transaction costs (Walker and Chau 1999). RC offers a cost-effective means of encouraging collectively beneficial behaviour, when transactions are exposed to opportunism, but a fully contingent contract is too costly (if not impossible) to specify. RC is characterised by the subordination of legal requirements and related formal documents, to informal agreements such as verbal promises, or partnering 'charters'. This mode of governance firstly calls upon both parties to recognize the positive gains from maintaining the business relationship, and secondly, for the parties to transcend the anonymity associated with market transactions. Disagreements are then negotiated towards solutions that do not jeopardize the relationship between the parties. Such objectives and approaches also provide an ideal framework for the joint management of risks that cannot be foreseen or clearly allocated to one party at the outset.

5. GROVE REPORT AND GOVERNMENT RESPONSE

The construction industry is notorious for its fragmented and adversarial environment. This has been particularly so in Hong Kong. Despite Government efforts to address contemporary issues in periodic reviews, large claims and disputes have been common on the one hand. On the other hand, all parties concerned spend considerable time and efforts on trivial claims (Kumaraswamy 1997). Among others, unclear and unfair risk allocation, poor communications, unrealistic time and quality targets by clients, and uncontrollable external events were found to be common causes of claims. A considerable number of these claims originated from, among others, unforeseen ground conditions, interference with utility lines, variations and inclement weather. Amidst this situation and in response to the much awaited general review of risk allocation by the industry representatives, the Works Bureau of the Government of Hong Kong SAR appointed an independent consultant (Jesse B. Grove III) in March 1998 to carry out a review of the General Conditions of Contract for Public Works Projects, with particular regard to the allocation and management of risks, and to make recommendations on any necessary modifications in the interests of public finance and based on international best practice.

Although his recommendations (Grove 1998), recognised the possibility of shared risks, he was unable to discern any logical basis for the sharing solution except to give both parties incentives to avoid and mitigate risks. He considered that both client and contractor were already adequately motivated, so the sharing solution had no appeal other than in a spirit of compromise. Yet he maintained the position that risk management should aim to minimise the total cost of risk on a project, not necessarily the cost of either party! In selecting risk allocation philosophy, the consultant considered four different standards and concluded that various standards involve a number of 'common considerations', which are essentially the risk allocation principles presented by Thomson and Perry (1992). He

rejected these common considerations because if these principles were applied, it should be possible to achieve clear and realistic terms which are acceptable to an employer and on which contractors are prepared to tender prices which do not contain contingencies for unclear terms, or for significant risks that are not possible to be estimated with some certainty or which are unlikely to materialise. He concluded that the risk allocation principles cited by Abrahamson (1984) come the closest to laying down an acceptable 'formula', and decided to draw threads from various approaches for his recommendations.

Table 1: Comparison of present risk allocation and related practices, with Grove Report recommendations and initial Government responses

A: RISK ALLOCATION / MANAGEMENT			
Risk	Existing provision	Recommendation	Govt. Response
Changes in law	Contractor	Client	Accept
Subcontractor payment	Only for nominated subcontractor	Let market forces operate	Accept
Ground conditions	Contractor	Client	Reject
Legal and Physical impossibility	Client	Allow the Engineer to relax contractual requirement or to issue variation	Reject
Third party interference	Contractor - cost, client - time	Client should accept both	Reject
Breach of contract by employer	No specific provision	Should be introduced	Reject
Need to terminate	No provision to terminate without default	Should be introduced	Accept
Client's need to accelerate	No provision	Should be introduced with compensation to contractor	Reject
Care of the works	Contractor's risk except damage, loss or injury from 'excepted risks'	Require All Risk insurance coverage	Accept - on a needs basis
B: RISK ALLOCATION / MANAGEMENT RELATED PRACTICES			
Item	Existing practice	Recommendation	Govt. Response
Notice and time bar provisions for claim	Notice - 28 days, particulars - 180 days after completion	Failure of notice should give rise to damages not forfeiture	Reject
Lump sum contracts	Either re-measurement or lump sum contract	Move away from re-measurement contracts	Reject
Role of Engineer	Independent Engineer concept	Move towards greater client authority	Independent ≤ HK \$300,000
Profit on claims for 'loss and expense'	No profit	Profit should be allowed	Reject
Lump sum forward pricing of variations	Similar item/ contract as 'basis' for valuation/ Engineer's decision	Client should express and operate a preference for 'lump sum forward pricing' of variations	Reject
Head office overhead recovery	No fixed rate	Either eliminate or fix the rate at a very low percentage of costs	Reject
Fixed rate of profit mark-up on variations	No provision	Client should fix the rate	Reject
Global claim	No contractual prohibition	Should be contractually prohibited	Reject
EOT for the events not included in contract	Allowed for special circumstances	Should be avoided	Reject
Escrow estimating files of contractor	No provision	Should be escrowed and used in disputes requiring arbitration only	Reject
Liquidated damages	Only for delay damages	Apply to performance deficiencies as well	Provide through special conditions
Dispute resolution	Engineer's decision, voluntary mediation and arbitration	Wider use of DRA and voluntary use of 'no-decision' mediation	Not yet decided
Contractor's post-contract alternative design	No provision to incorporate as a variation	Should be considered. Variations preferably issued on a daywork basis	Accepted

A summary of the risks and related practices from the consultant's late 1998 recommendations are compared with Government response in Table 1. It is observed that the Government has initially rejected most of the recommendations of the consultant. Among others, two recommendations that clients should accept the risks associated with unforeseen ground conditions and third party's lawful interference are of considerable interest and concern to the construction industry (CIRC 2001). The Government apparently rejected both recommendations at the outset. On unforeseen ground conditions, the Government's stance is different from international practice, but the Government expects that it could reduce the exposure to this risk substantially by procedural means. With respect to third party interference, the problem primarily arises from excavation works, which very often sustain delays because of the numerous buried utility services encountered. A current practice is to award the contractor extension of time where justified, but not extra costs. The contractor is required to liaise with the utility company to co-ordinate utility diversion within his construction programme. The Government takes the view that in such situations the contractor would have no incentives to mitigate delays if the Government were to accept the risk. Since the consultancy report and the Government's initial response to the consultants' recommendations were released in May 2000, there has been much discussion within the industry on the subject (e.g. Lovells 2000), but there has been no official position expressed to date.

6. RELEVANT CIRC RECOMMENDATIONS

Following various construction industry reports in the UK, Australia and Singapore, the Government of the Hong Kong SAR formed a high-powered 'Construction Industry Review Committee' (CIRC) in early 2000 to give its recommendations on local construction industry improvements. The CIRC gave its report titled 'Construct for Excellence' in January 2001 (CIRC 2001).

Relevant CIRC (2001) recommendations include: (1) public sector clients to take a lead in promoting wider adoption of systematic risk management; (2) Public sector clients to take a lead in adopting comprehensive project planning and taking into account at the outset, factors which may later impact on project implementation; (3) to reject exceptionally low bids; (4) an equitable allocation of risks, based on the principles of Thomson and Perry (1992); (5) to seriously reconsider the Grove recommendations in the light of '4' above within one year, with the objective of achieving a more equitable allocation of risks between the contracting parties and of arriving at a contract document that: (a) carries clear definition of risks and their allocations; (b) is designed for effective contract management of time, cost, safety and quality; (c) is designed to be simpler to read and understand; and (d) contains an effective means to settle disputes as risks materialise; (6) public sector clients and progressive clients in the private sector, to foster a new culture in the construction industry through more extensive adoption of a partnering approach within one year; (7) to develop a new form of contract that is based on co-operation, client focus and commitment to best practice - integrating a partnering approach into the contractual relationship, within two years.

7. CHANGE OF ATTITUDE: JOINT RISK MANAGEMENT

Table 2 summarises the results of average perceptions on JRM in each category of risks identified in the contract conditions, in terms of the number of risks as against percentage ranges recommended for JRM. These are extracted from a relevant summary of the consolidated responses from 47 respondents to a Hong Kong based survey carried out in Jun-July 2000. This survey focused on risk management in construction projects in general. It is evident that sizable percentages of many of the 41 identified common construction project risks were perceived to be more suited for JRM, despite relatively small divergences between responses based on different contract categories.

Respondents more familiar with the FIDIC contract category recommended 21 (i.e. 14+5+2) risk items for JRM in the range of 11% to 40%. This may relate to the reality that some of the risks can not be foreseen at planning or design stage, while other risks are unique or project specific, and some risks, in any case, need the combined efforts of more than one contracting party for their efficient management. This is very relevant as the FIDIC conditions are considered to be well drafted in terms of clarity and balanced risk allocation, and are being widely used in international projects in many countries. Respondents in the General category (i.e. where the responses were not based on any particular contract conditions) advised JRM for 24 risk items from 21% to over 50%. This may reflect that the present industry needs to move towards more collaborative and teamworking based approaches (i.e. RC) to address construction risks effectively. As any collaborative teamwork needs better understanding and good relationships among the project participants, this may also reinforce the need for a paradigm shift away from the present confrontational culture and adversarial attitudes of the stakeholders.

Respondents more familiar with the HKGCC contract category suggested 27 risk items for JRM in the percentage range of more than 20%, and in particular, 4 risk items were advised for 41% to 50% and 6 risk items were recommended for more than 50% of JRM. In doing so, the respondents preferred reduced risk liabilities of either one or both of the contracting parties by considerable percentages, instead of allocating more risks on just the other party. This is taken as a very relevant and important finding, as Hong Kong construction industry is known to be adversarial, while JRM at post-contract stage needs non-adversarial teamwork, where better relations, mutual understanding, strong cooperation among the contracting parties and deep appreciation of the underlying situation are preconditions. Table 3 shows average perceptions for both present and preferred risk allocation of the (4+6 =) 10 risk items under the HKGCC category that are recommended for JRM of over 40%, along with the differences of present and preferred risk allocation. The table includes unforeseen ground conditions, third party interference and inclement weather, which were previously found to be some of the root causes of claims and disputes in Hong Kong (Kumaraswamy 1997), and the reallocation of two of these risks are of great concern of the industry (CIRC 2001). This may point to the state of present risk allocation and may indicate an immediate need for reviewing the HKGCC. It may also mean that Hong Kong project participants are quite receptive to calls for more cooperative (and less adversarial) working arrangements (CIRC 2001).

Table 2: Summary of average perceptions on Joint Risk management (JRM) based on contract categories (i.e. standard contract conditions)

% of risk that should be jointly managed	Number of risks (out of 41 used in the survey) in each category*			
	Total (47)	FIDIC (25)	HKGCC (8)	GENERAL (9)
0	0	0	0	1
1 - 10	12	20	9	5
11 - 20	13	14	5	11
21 - 30	10	5	10	7
31 - 40	6	2	7	11
41 - 50			4	4
More than 50			6	2
Total No.:	41	41	41	41

* Figures in parentheses () indicate the number of responses. Five responses were based on some other different contract conditions and those are not compared here as a separate category.

Notes: FIDIC: Fédération Internationale des Ingénieurs-Conseils (International Federation of Consulting Engineers)
HKGCC: The General Conditions of Contract for Civil Engineering Works in Hong Kong
GENERAL: Not according to any particular conditions of contract

Table 3: Comparison of average perceptions between present and preferred risk Allocation arising from the HKGCC (contract conditions) 'category'

Risk Items	% of risk that presently lies with		% of risk that should be allocated to/ managed			Diff. of present & preferred allocation	
	C	O	C	O	J	C	O
Buidability/ Constructibility	58	42	48	11	41	10	31
Delayed Payments on Contracts	29	71	15	44	41	14	27
Legal Impossibility	25	75	12	43	45	13	32
Unforeseen Ground Conditions	65	35	30	24	46	35	11
Resolving Contractual Issues	54	46	36	9	55	18	37
Resolving Disputes/ Arbitration	54	46	36	9	55	18	37
Third Party Interference/ Delays	51	49	31	12	57	20	37
Physical Impossibility	10	90	3	40	57	7	50
Acts of God/ Inclement Weather	31	69	14	26	60	17	43
Public Disorder	40	60	20	5	75	20	55

Notes: C - Contractor O - Owner J - Jointly

The above findings indicate a pattern of attitudinal change of the project participants and herald a tendency of moving towards a more co-operative and collaborative working environment. JRM needs non-adversarial teamwork, where better relations and cooperation among the contracting parties are preconditions. The above results also highlight the potential for (1) future cooperation in post commencement planning and during actual operations, (2) anticipating potential risks/ conflicts through open interactions, (3) resolution of issues including claims through negotiations, and (4) management of residual risks and conflicts through cooperative restorative techniques. All these are in turn expected to lead to cost and time minimisation, rationalised risk management, and most issues being resolved within the project without disrupting relationships. RC based approaches (e.g. partnering, alliancing) seem to provide suitable vehicles for moving faster in these directions.

8. CONCLUDING REMARKS

Hong Kong is an open market and probably unique (and if not unique, rivalled only by Singapore) in having a truly international construction industry with so many major international contractors, consulting engineers and other professionals. The openness of the Hong Kong market to international influences is one of its great strengths and this policy is expected to preserve that advantage. However, systems have not been established to demonstrate flexibility and speed in identifying problems in construction contracts and in proposing solutions (Marriott 2000).

The Government Policy has a legitimate objective to ensure that public money is not wasted and could be accounted for in a transparent manner. As a result, certainty of price, value for public money, and timely completion are seen to be the overriding objectives of public works contracts. But the actual cost of a contract cannot be finalised only by getting a certain tender price. As observed by Kumaraswamy (1997), resources spent for lengthy and large claims and disputes; efforts and time spent on settling trivial claims; and time extensions on a considerable number of projects - neither give certainty of price, nor ensure ultimate value for public money. The actual cost can only be computed after settling all claims and disputes that may continue for long time, even after completion of construction works. Present policy thus needs serious reconsideration. It is in the public interest that public works projects be executed efficiently and that they not be bedevilled by contractual disputes and by an adversarial and negative approach in their administration (Marriott 2000).

Traditional contract strategies for construction and their allocation of responsibilities and risks in standard conditions of contract are inappropriate for today's high-risk scenarios and complex projects. A tailor-made contract strategy suitable for the active joint management of risk by all parties is seen as more suitable (Thompson and Perry 1992), because not all the risks are foreseeable at the outset and much information is unavailable. Risks and uncertainties are realistically appreciated only later and in stages. Therefore, proper and exhaustive allocation of risks cannot be achieved through contract conditions alone. Some of these risks may also require the combined efforts of both contracting parties for their effective management, because the goal of optimal risk allocation should be to minimise the total cost of risk to a project, not necessarily the costs to each party separately (CII 1993). This perfectly matches the call for managing risks systematically and proactively in the Hong Kong construction industry (CIRC 2001). Flexibility in contract conditions is therefore necessary and unforeseen risks need to be managed using a JRM strategy, as and when they eventualise. Such provisions should be established in the contract conditions. RC principles as examined in this paper, may be mobilised (e.g. through partnering) to achieve such revamped risk management. The trust, smoother communications and faster problem solving achieved through RC approaches will considerably boost transactional efficiencies and lay firm foundations for mutually beneficial longer-term relationships. Jointly identified overall common objectives and interactive operational strategies will clearly enable the JRM that is eagerly awaited in the industry, as evidenced in the reported survey. This aspect should be borne in mind in revisiting risk allocation recommendations in the Jesse Grove Report and in implementing the Tang Report (CIRC 2001), in achieving the much heralded 'culture' attitudinal shifts and in moving the Hong Kong industry towards the long-awaited win-win-win scenarios.

The allocation of risks is a matter of judgement that will depend on the varying requirements of the parties to the contract (McGowan et al 1992). Clarity of the contract conditions and the procedures for dealing with any risk in the event of its occurrence are therefore important, and should be straightforward. More importantly, it is not the form of contract that primarily determines whether targets are met, but the attitudes of the parties to which the form of contract may contribute. These attitudes need to be initially moulded by clients through the contract conditions. Industry and client should look for ways of sharing the benefits from improved performance. Construction projects should not be football matches where teams score points to defeat the 'opponents' and referees are needed to 'police' the process.

Instead they should be like a well-choreographed ballet performance - where each dancer plays a synergistic role in perfect harmony with each other, and 'in symphony' with the music, lighting, props, back-stage/ support team and the overall environment – in a perpetuated pursuit of superior performance levels and all-round excellence.

9. REFERENCES

- Abrahamson, M. W. (1984). Risk Management, *International Construction Law Review*, Vol. 1, Part 3, pp. 241-264.
- Alsagoff, S. A. and McDermott, P. (1994). Relational Contracting: A Prognosis for the UK Construction Industry? Proceedings of CIB W92 - Procurement Systems - East Meets West. University of Hong Kong, ed. Dr. Steve Rowlinson, pp. 11-19.
- Campbell, D. (1997). "The Relational Constitution of Contract and the Limits of 'Economics': Kenneth Arrow on the Social background of Markets" in *Contracts, Co- operation and Competition, Studies in Economics, Management and Law*, ed. Deakin, S. and Michie, J., Oxford University press, pp. 307-336.
- CII (1993). Allocation of Insurance Related Risks and Costs on Construction Projects. Construction Industry Institute (CII), University of Texas at Austin
- CIRC (2001). Construct for Excellence, Report of the Construction Industry Review Committee (CIRC), January 2001, Hong Kong
- Dissanayaka, S. M. and Kumaraswamy, M. M. (1999). Reconstructing Procurement Systems and Team Relationships, *International Journal of Computer Integrated Design and Construction*, Vol. 1, No. 2, pp. 10-19.
- Grove, J. B. (1998). Consultant's Report on Review of General Conditions of Contract for Construction Works, The Government of the Hong Kong SAR
- Hartman, F., Snelgrove, P. and Ashrafi, R. (1997). Effective Wording to Improve Risk Allocation in Lump Sum Contracts, *Journal of Construction Engineering and Management*, Vol. 123, No. 4, pp. 379-387.
- Jones, D. (2000). Project Alliances, Proceedings of Conference on 'Whose Risk? Managing Risk in Construction— Who Pays?', Hong Kong, November 2000
- Kumaraswamy, M. M. (1997). Common Categories and Causes of Construction Claims, *Construction law Journal*, Vol. 13, No. 1, pp. 21-34.
- Langdon, D. (2000). Costpoint, Industry Cost Commentary, Australia, June 2000.
- Lovells (2000). Panel Discussion on the Review of Government's General Conditions of Contract for Construction Works by Jesse B. Grove III and the Government's Response, Seminar Paper, Lovells International Law Firm, July 04, 2000, Hong Kong
- Lyons, B. and Mehta, J. (1997). "Private Sector Business Contracts: The Text between the Lines" in *Contracts, Cooperation and Competition, Studies in Economics, Management and Law*, ed. Deakin, S. and Michie, J., Oxford Univ. Press, pp. 43-66.
- Macaulay, S. (1963). Non-Contractual relations in Business: A Preliminary Study. *American Sociological Review*, Vol. 28, pp. 55-67.
- Macneil, I. R. (1974). The Many Futures of Contracts, *Southern California Law Review*, Vol. 47, pp. 691-816.
- Macneil, I. R. (1978). Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, and Relational Contract Law, *Northwestern University Law Review*, Vol. 72, No. 5, Part 2, pp. 854-905.
- Macneil, I. R. (1980). *The New Social Contract: An Inquiry into Modern Contractual Relations*, New Haven, NJ, Yale University Press.
- Marriott, A. (2000). Introductory speech for the conference 'Whose Risk? Managing Risk in Construction - Who Pays?', November 2000, Hong Kong.
- McGowan, P. H., Malcolm, R., Horner, W., Jones, D. and Thompson, P.A. (1992). Allocation and Evaluation of Risk in Construction Contracts. CIOB
- McInnis, A. (2000). Review on "International Conference on 'Whose Risk? Managing Risk in Construction – Who Pays?', Hong Kong, November 2000". *Asian Architect & Contractor*, Vol. 29, Issue 11, pp. 50-51.
- Thompson, P. and Perry, J. (1992). Engineering Construction Risks: A guide to project risk analysis and risk management, SERC Project Report
- Walker A. and Chau K.W. (1999). The Relationship between Construction Project Management Theory and Transaction Cost Economics. *Engineering, Construction & Architectural Management*, 1999, Vol. 6, No. 2, pp. 166-176.
- Williamson, O. E. (1987). *The Economic Institutions of Capitalism*, Free Press, New York, USA, (c1985)