

# Relational Contracting Philosophy for Challenges of Indian Construction Industry

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**Abstract:** *In recent years the use of relational contracting in construction industry is increasing by using its forms such as partnering and allaincing. It is evident from literature that by using RC philosophy numerous construction projects have been completed successfully in terms of cost, schedule, quality, effective dispute resolution and overall satisfaction to parties involved. However, the use of RC philosophy is limited to few developed countries only and Indian public sector construction industry has not still explored the use of this novel concept in its procurement. This paper discusses the challenging issues of Indian construction industry such as limitations due to traditional contract procedure, absence of standardized work manuals, and shortage of human resources, quality and safety issues, low productivity, poor technology and ineffective dispute resolution. Paper further discusses how these issues could be effectively dealt by using RC philosophy. A theoretical framework is provided to adopt RC philosophy in traditional procurement procedures for Indian public sector construction organization.*

**Keywords:** *RC philosophy, partnering, allaincing, Indian construction industry*

## 1. Introduction

Indian construction industry contributes around 8% to nation's GDP in the last five years and it is expected that this contribution will increase to 9% of GDP during next five years. However, the industry is facing acute problems of cost overruns, schedule overruns, quality problems and delay in resolving disputes. To overcome similar problems, developed countries like USA, UK, Australia, Singapore, and Hong Kong have adopted relational contracting (RC) philosophy by using its forms such as partnering and allaincing since past two decades. In traditional forms of project delivery, the relationship between client and contractor is based on a contract. RC adds a cooperative philosophy to the traditional contractual relationship. This philosophy is a trust-based relationship among project participants to facilitate the successful completion of a project and bestowed benefits to all the parties involved in the project. It is evident from literature that by using RC philosophy numerous construction projects have been completed successfully in terms of cost, schedule, quality, effective dispute resolution and overall satisfaction to parties involved.

In spite of the numerous successes of the RC philosophy in construction industry, Indian public sector construction organizations have not yet adopted RC philosophy in the procurement of infrastructure projects. One of the reasons could be attributed to lack of studies to overcome the present challenges of Indian construction industry using the concept of RC. This paper therefore identifies the present challenges faced by the Indian construction industry through literature review and provides the argument regarding how these issues could be tackled by adopting RC philosophy. This paper further discusses the conceptual framework for incorporation of RC philosophy in traditional procurement system commonly adopted by Indian public sector organization for acquiring infrastructure projects.

The remainder of paper is organized into four sections. The second section deals with the issues being encountered by the Indian construction industry through literature review. Section 3 discusses how these issues

could be dealt by adopting RC philosophy. Section 4 explains the conceptual framework for Indian public sector construction organization to adopt RC philosophy in its traditional procurement system. Section 5 concludes the paper.

## **2. Challenges before Indian Construction Industry**

The challenges being encountered by the Indian construction industry are normally the typical issues relating to the limitations of traditional contract procedure, absence of standardized works manuals, shortage of human resources, old technology and low productivity, and ineffective dispute resolution mechanism. These issues are discussed below;

### **2.1. Traditional contract procedure limitations**

Indian construction industry is driven by traditional contract where project is awarded to the lowest bidder. The process of tendering brings the competition in the procurement which is the only known method of ensuring cost effectiveness and transparency. However, this competition is vanishing. The awarding authorities take arbitrary decision in favor of few departmentally approved contractors while executing the projects [1]. The prequalification of contractor is only based on financial capacity of the contractor and technical capacity of contractor. The technical capacity of contractor is verified on the basis of total amount of similar work done by the contractor and physical resources available with the contractor that he can deploy in the project. This contractor selection procedure suffers from two major deficiencies. First, the selection process does not attach any importance to the past work performance of contractors in terms of quality of work done. Second, a contractor can bid for any number of projects at the same time. Because procurement auctions take place in a decentralized manner in government departments, it is quite possible that a contractor can win award of multiple projects. Such a contractor often fails to handle all the projects satisfactorily due to the limited resources and exceeds the planned schedule and cost and, consequently, compromises on quality[2]. Moreover, there is aggressive competition at tender stage and limited time available for bid preparation. This compels the contractor to offer minimum price at tender stage [3]. As a result, contractor often practises cost-cutting measures, which lead to serious quality problems, and make extra claims during construction phase leading to disputes.

### **2.2. Absence of Standardized Works Manuals**

Ideally, the objective of any public contracting is to get the proposed work executed as per bid specifications within a given schedule and at the most competitive price. To achieve this objective, it is essential to have well-documented and customized policy guidelines in each organization so that this vital activity is executed in a well-coordinated manner. However, the absence of a proper works manual in most organizations poses a significant weakness in this system of contracting. It not only leads to arbitrariness in decision making but also results in a lack of quality supervision in the execution of works as benchmark standards are not available. It has been noticed that tender documents are not updated to suit the contract requirement. As a result, obsolete, irrelevant, and sometimes conflicting, vague and incomplete clauses are incorporated in the bid documents. Sometimes the ambiguities in the contract clauses are detected at the time of execution of works [1]. Moreover, ambiguous contract clauses and specifications are interpreted by each party as per their convenience [4]. These contractual laxities can be a cause of corruption [5] as well as wrong interpretation of clauses generates disputes during execution which subsequently delays the project. This also poses an enormous challenge to the contractors for rolling out an appropriate management plan on site[6].

### **2.3. Shortage of Skilled Human Resources**

Industry is facing shortage of skilled workforce. As per the industry estimates the employment figures have shown a steady rise and at present the construction industry employs 31.46 million personnel. There is a substantial drop in the percentage proportion of qualified engineers employed at work sites, while the relative proportions of unskilled persons have gone up. This has led to indiscriminate hiring of unskilled persons by contractors to fill the requirements[7]. Furthermore, contractor and clients are reluctant to invest in training of staff. As a result, the staffs rely on limited knowledge and they are unaware of new technology adopted by global counterpart [3]. An insufficient management skill of site supervisors causes the poor labour productivity and poor site management [6]. Lack of training to project staff affects the successful project completion [4]. The end result

is slow progress of work, rampant time and cost overruns, low productivity and quality and eventually low value addition[7].

## **2.4. Quality and Safety Issues**

Construction industry has been witnessing decline in quality and safety aspects during past two decades[7]. Site accidents not only harm individuals and consume time, but also it is observed that productivity of labour reduces significantly after an accident. Time is also wasted in attending to accidents and replacing the injured person by a person with lesser or irrelevant skills [6]. There is need to enhance vigilance on the work of safety management teams. The manpower constituting these teams needs to be adequately trained not only in simple compliance procedures, but in hazard and risk assessment in their specific projects with a view to pre-plan risk reduction against expected hazards [7].

The government departments are found ignoring the important aspect on quality supervision of the projects. It has been noticed that even though the contract clearly stipulates deployment of site supervisory staff by the contractor, with minimum requisite qualification and experience, but in practice the supervisory staff is invariably found with inadequate qualifications and experience and is also not employed for the full duration of the contract [1]. With rising complexities of modern construction and large areas of the country being prone to natural disasters, the issue of training of construction quality and safety assessors is area of concern [7].

## **2.5. Old Technology and Low Productivity**

Unfortunately technology being used in Indian construction industry remains lagging behind in comparison with other countries and also to various sectors in the Indian economy itself. Low level of adoption of advanced technology in Indian construction industry leads to low value addition and low productivity along with poor or sub-standard quality coupled with time over runs. Doloi, Sawhney [6] pointed out that use of improper or obsolete construction methods is a result of unprofessional engagement and perhaps without an appropriate commitment to project from the contractor. Improper construction method compromises the safety and quality standards and affects the productivity, which potentially increases the duration of the project. Indian construction industry is concerned with two aspects of productivity, firstly, the overall volume of the output in terms of construction works is low and secondly, the output per unit of resources consumed such as raw materials, man power and financial inputs is very low. Demand for high technical and high value addition in the construction can only be driven by the owners of the project. Due to focus on cost minimization by the owners, there is no incentive for the contractor to adopt better construction technology. The drive for adoption of advanced technology should be propelled by the owners [7].

## **2.6 Ineffective Dispute Resolution Mechanism**

Arbitration is the method of choice to resolve disputes globally. However, in India, arbitration has been largely ineffective. The Arbitration and Conciliation Act, 1996, is ambiguous about the challenging of awards, and lacks enforceability. With multiplicity of contract forms, varied dispute resolution mechanisms, lack of willingness of parties involved to honour the awards, and no effective implementation mechanism in practice, in most cases the disputes end up in courts of law and remain unresolved for long durations[7]. The average time taken by the Indian Courts for deciding disputes is normally between 5 and 15 years after it has passed through the arbitration trial. Parties feel frustrated because of the delay in settlement of disputes. This delay contributes to continuous rise in the number of cases pending in various courts. It is reported that there are over two million cases pending in 18 High Courts (apex courts of various states of India) alone and more than 200,000 cases are pending in the Supreme Court (apex court of the nation) for admission, interim relief or final hearing[8]. Therefore, the need to develop and set up an institutional framework, which can effectively tackle the hard-core problems of time and cost of the arbitration proceedings, has been widely felt by the stakeholders[7].

## **3. Relational Contract for Indian issues**

The challenges being faced by the Indian construction industry are mostly related to the limitations of the traditional procurement process, adversarial contracting nature, and inadequacies in Indian construction industry. This section discusses how these challenges can be solved to a certain extent using the RC philosophy.

### **3.1. RC to overcome limitations of traditional contract procedure**

Ideally contractor selection should be based on qualitative criteria as well as cost. However, some legal restrictions limit adoption of alternatives to the above system for contractor selection. In countries where the law requires fair and transparent compulsory competitive tendering for public procurement, the partnering process can be implemented only after the contract is awarded. In such cases, if the public client is actively committed to partnering, sufficient rewards can be obtained despite the late implementation of partnering [9]. Thus the client's principal criteria must set out the proper contractor selection process that will give equal importance to quality of work, safety and environmental issues along with technical and financial capacities. In Australia, general prequalification criteria recommended by CIDA (the former Construction Industry Development Agency) have been classified under categories such as technical capacity, financial capacity, quality assurance, time performance, occupational health and safety, human resource management, and skill formation [10]. In such case, clients are incentivizing to make the cultural shift from single project tendering to partnering. This implies re-focusing from lowest cost to a cost/quality balance [11]. Thus, by adopting RC approach Indian construction industry can also introduce stringent prequalification criteria for contractor selection to overcome the limitations of traditional contract procedures.

### **3.2 RC for Absence of Standardized Works Manuals**

RC implementation begins with a joint workshop involving key project participants on the contract. The purpose of the workshop is to bring out the expectations of the parties and define the project mission. Key project goals, objectives and their measures are also agreed. These formed the basis of the project partnering charter. The partnering charter signifies the agreement of the contracting parties to commit to the project objectives set out in the charter [12]. During execution of the project, the team should determine the current performance gap by measuring internal performance. It should be compared with the best performance which forms the baseline for comparison. If the performance of the best performer outweighs the internal performance, then its practice is worth benchmarking. After which, the findings can be summarized and documented. This document serves as a benchmark guide for future performance [13]. This performance report and project charter of first demonstration project using RC philosophy could be utilized to improve contract conditions and specification for future projects of similar type of work. Thus, the new document resulted from first demonstration project could be used as standardized works manual for upcoming projects.

### **3.3 RC for Shortfall of Human Resources**

Partnering development is not only a matter of learning new knowledge and adjusting existing working processes, but it also requires discarding old routines and behavior [14]. But it is unfair for management to expect employees to change unless they are continuously trained in the new concepts [15]. Hence, RC begins with workshops by external or internal facilitator to train the people for soft skills required for new relationship development. Thus, it could be argued that similar training workshops could be further extended to train the labour force technically and site supervisors for quality and safety assessment as per the project requirement. This could help in filling the gap of skilled workforce requirement. Shields and West [16] studied the construction of clean room facilities at Canada and observed that on-the-job classrooms for rapidly training workers in unfamiliar construction techniques and systems were key success factor of the project.

### **3.4 RC for Quality & Safety Issues**

The partnering process facilitates communication of quality issues, enables earlier recognition of potential problems, and helps to develop a quality consciousness. Due to this, partnering produces high quality construction service and reduces engineering rework [17]. Partnering can play a big role in facilitating implementation of TQM in construction as partnering promotes open communication amongst the project stakeholders. Open communication enables all participants to be much more integrated, and as a result the barriers to implementation of TQM in construction can be substantially removed. Thus, it is expected that partnering can improve the implementation of TQM in construction [18]. Similarly, taking joint responsibility to ensure a safe working environment for all parties reduces the risk of hazardous working conditions and avoids workplace accidents. Actually, the safety performance can be improved as partners better understand each other and as the knowledge of construction process and systems improves drastically [17]. Therefore, it is argued that by adopting RC philosophy Indian construction industry can effectively tackle the issues of quality and safety.

### **3.5 RC for New Technology and Improved Productivity**

Koraltan and Dikbas [9] pointed out that partnering should be initiated prior to design in order to realize the greatest benefits. This makes possible an integrated design-construction process, with innovative solutions offered by all participants like value engineering solutions, and life-cycle costing considerations, and reduces problems that may arise in the construction phase. However, this does not imply that if partnering is adopted at a later phase it will not be beneficial. It may be possible to increase the overall innovative activity of the construction industry through an increased focus by architects and consulting engineers on diffusing their knowledge and innovative capabilities, through knowledge sharing in collaborations, to other parties in the construction industry [19]. Thus, involvement of contractor and specialized sub-contractors in design phase will be useful to increase the constructability of design and to introduce the new technology as well.

To improve productivity, various performance based incentive system can be introduced. The financial incentives can be powerful motivators, especially on a company level. The prospect of high returns may push the companies involved to assign their best staff to the project and give it higher priority compared to other projects [20]. Payments can be generally structured to correspond with contractual performance. For example, providing incentives for achieving improved performances and increased productivity. Similarly, provide disincentives for shortfalls in achieving required quality and desired performance [21].

### **3.6 RC for Effective Dispute Resolution**

Many government organizations have documented decrease in litigation through partnering. Partnering improves the cooperation which has resulted in reduced litigation and an ability to perform existing processes with increased efficiency [22]. The dispute resolution board (DRB) is an active, real-time method that allows contracting parties to plan a combined approach for discussing potential problems, and proposing solutions to these problems, before the problems escalate. It should be understood that the DRB process does not replace traditional techniques of dispute resolution. These techniques include the early recognition of potential areas of disputes, good record keeping, maintaining clear contract documents, staying involved in the resolution of potential disputes, maintaining effective communication, and risk allocation. A major strength of the DRB process is the familiarity of its members with the ongoing construction. In order to maintain this familiarity, frequent visits and roundtable discussions at the project site should be held frequently [23]. Thus, by forming DRB Indian public sector construction industry can minimize the litigations.

## **4. Proposed Framework**

This section explains the conceptual framework on how to integrate RC philosophy in its traditional procurement system for Indian public sector construction organization. Figure 1 describes the conceptual framework showing the interventions relating to RC principles incorporation grouped under five phases.

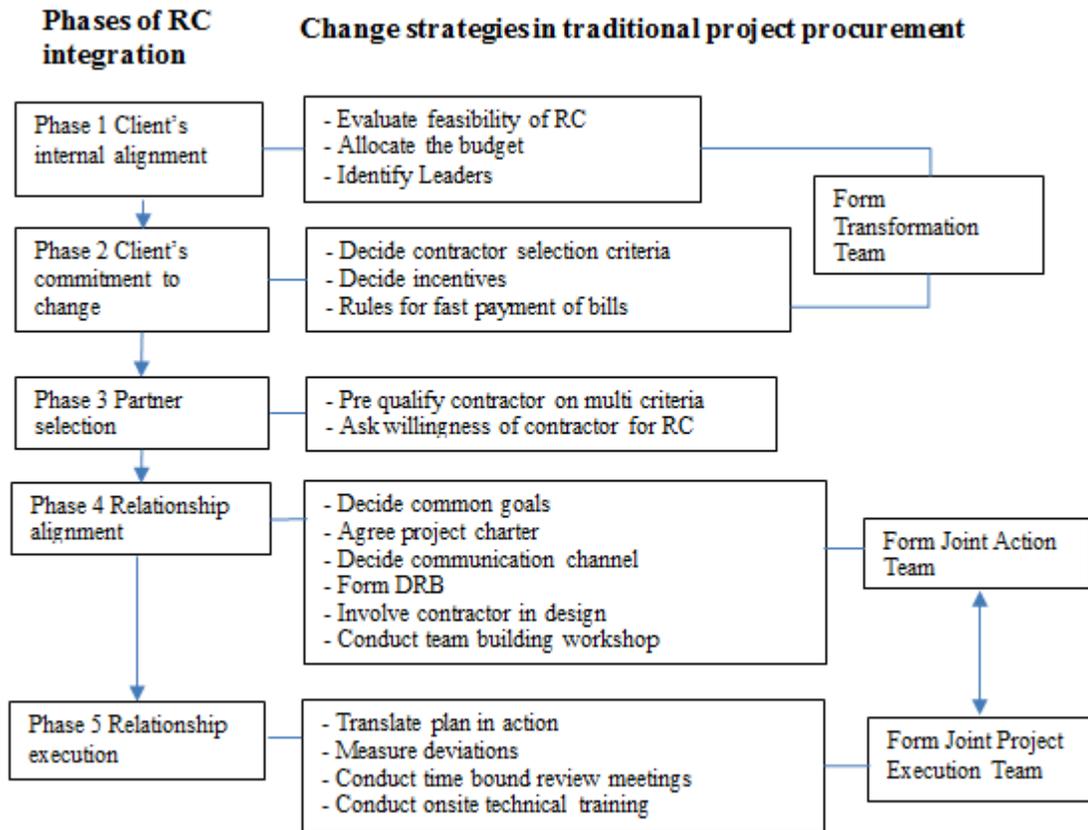


Fig. 1: Proposed framework of RC approach in traditional procurement

### Phase 1: Clients internal alignment

In this phase, client's top management decides the nature of changes that needs to be carried out in the organization to adopt RC philosophy. The basic objective is to evaluate the RC philosophy as the best means to achieve a successful project. The selection criteria for project may be big cost, time of construction, specific technical requirement, and specific quality requirement. To initiate the process, selection of champions or leaders is a crucial aspect. The top management identifies two or three leaders from the organization and forms the transformation team to carry out necessary changes. Similarly, the top management should allocate budget ranging from 0.25% to 2% of project cost to carry out the transformation in the organization. This includes the cost of training to the staff, fees of the facilitator and cost of workshops.

### Phase 2: Client's commitment to change

In this phase, the transformation team decides the contractor selection criteria based on financial and technical capability, past performance by the contractor regarding quality of work, implementing safety and environmental norms in working. The role of transformation team is to decide the weightage to each criterion as per project requirement. As equity is a heart of relational contract, it is utmost important to have proper provisions for reward to the contractor. The provisions of incentives for completion of work within time, within cost, as per quality, following safety and environmental norm individually or combination of all as per project requirement need to be incorporated in bid document. Similarly, the rules for fast payment of bills to contractor should be practiced so that contractor will receive timely payment during execution. Implementing such practice will not disturb the contractors' cash flow and the contractor will be in a position to maintain the pace of construction. By carrying out these changes in bid clauses, client confirms their commitment to change for new relationship.

### Phase 3: Partner Selection

Public sector client always have the limitation to select the contractor through lowest bid and abide to rules and regulations by government. This framework recommends the contractor selection through lowest bid only,

however the prequalification is based on stringent criteria. The weightage decided by transformation team in phase 2 on various criteria will be used here for prequalification of contractor. This allows the participation of only those contractors who have performed well in past projects in the bidding process. Only those contractors who are willing to form new relationship and ready to give written consent should be qualified for financial bid.

#### **Phase 4: Relationship Alignment**

Relationship alignment is a key activity to be carried out during preconstruction phase. The top management from both the side forms the joint action team consisting of 2-3 leaders from each side for further work process alignment and relationship alignment. The role of joint action team is to decide common goals, prepare project charter, decide communication channel, form dispute resolution board, involve specialized sub-contractor in detail design, form joint project execution team and arrange team building workshops.

#### **Phase 5: Relationship Execution**

During the construction phase, the joint project execution team translates the plan on paper into actual action. The team will measure the deviation of goals during execution, report it to the joint action team and implement the necessary action to correct the deviations. At this phase, the joint action team will coordinate with all parties to conduct time bound review meetings. This will also help joint decision making and minimizing dispute. At the same time, it will arrange onsite technical training to labours and members of joint project execution team. At the end of the project, joint action team will prepare detail assessment report of the project including success and failure strategies. This assessment report will be useful as a guide for future projects.

## **5. Conclusions**

This paper has identified challenges before Indian construction industry such as limitations due to traditional contract procedure, absence of standardized works manuals, shortfall of human resources, old technology and low productivity, and ineffective dispute resolution. The paper has pointed out that how these challenges could be effectively tackled by adopting RC philosophy. For Indian public sector construction organization to adopt RC philosophy in its traditional procurement system various change strategies have been suggested in the conceptual framework. Though the conceptual framework is based on theoretical background, it needs to validate by adopting field research.

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