

# **Obstacles to Co-operative Working: Lessons From Construction**

**D. C. Brown, M. J. Riley and K. A. Killander**

## **Introduction**

Co-operative working should be the paradigm for achieving competitive advantage in a global economy. Adoption of co-operative values and principles, described by Birchall<sup>1</sup>, offers the key to unlock a new organisational culture. Without motivation, mutual support, common goals and values, organisational disfunctionality and disintegration will occur. This effect will be exaggerated in virtual organisations leading to inter-organisational adversity. Maintaining organisational and inter-organisational coherence through co-operation can only occur by trust based interpersonal integration. The management and diffusion of conflict, teambuilding and organisational culture are the foundations for co-operative working. Co-operation provides a business strategy for focusing on customer care together with continuous improvement in quality and reduced overhead costs as a result of common purpose.

The sixth principle of co-operation (Birchall<sup>1</sup>) is defined as co-operation between co-operatives. Co-operation in a virtual co-operative is a very fragile operation. Disintegration of the virtual enterprise can occur quickly as a result of lack of inter-organisational trust and differing expectations and goals.

Construction projects are executed by assembling teams drawn from a number of different organisations. It is, therefore, in this area of inter-organisational co-operation that the lessons learnt in the construction industry can have the greatest impact.

## **The construction industry**

Construction projects are executed by the formation of temporal virtual organisations. These virtual organisations are characterised by being composed of organisations with widely varying objectives and expectations. A feature of these

organisations is that they are made up of designers, constructors, architects and other professionals in a formalised structure, for the express purpose of delivering a project for a client. However, the participant who has little or no control over the cost, quality or final outcome of the project is the client. The wishes of the client are completely obscured by the adversity created within the virtual organisation through absence of co-operation. Successful projects are characterised by focus on client requirements and co-operation replacing adversity, and inclusion of the client in the virtual organisation.

Construction accounts for approximately 10 per cent of the gross national product of the UK (DoE<sup>2</sup>) and holds a similar position in most of the world's industrialised nations. The size of the industry has, for many years, allowed these inherent inefficiencies to become an accepted part of the construction process. The parties to construction are often adversarial, inefficient and resistant to innovation. There is a world wide effort to create significant improvements in the construction industry. To this end targets and deadlines have been established to drive this process forward. The improvement targets being set are ambitious but considered to be achievable. Table I shows the USA and UK targets. Many countries have established similar targets.

| Construction Sector Performance Metric          | USA Government  |         | UK Government/<br>EPSRC |
|---|-----------------|---------|-------------------------|
|   | Target          | Rank    |                         |
| Total Project Delivery Time                     | Reduce by 50%   | First   | Reduce by 25%           |
| Lifetime Costs (Operation, Maintenance Energy)  | Reduce by 50%   | Second  |                         |
| Productivity and Comfort Levels of Occupants    | Increase by 50% | Fifth = | Improve by 25%          |
| Occupant Health and Safety Costs                | Reduce by 50%   | Sixth   |                         |
| Waste and Pollution Costs                       | Reduce by 50%   | Fifth = | Reduce by 30%           |
| Durability and Flexibility in Use Over Lifetime | Increase by 50% | Third   |                         |
| Construction Worker Health and Safety Costs     | Reduce by 50%   | Fourth  | Zero Defects            |
| Construction Quality                            |                 |         |                         |

Table I: Construction sector performance improvement targets for the USA and UK

To try to achieve these targets emphasis has focused on

transferring improved processes implemented with success in the manufacturing industry to the construction industry. The traditional construction industry is perhaps the last industrial sector to look to the improvements produced in the manufacturing industry; and it should be recognised that many of the methods for improvement developed within the construction industry could be successfully transferred to other industrial sectors. Technical methods such as just in time (JIT), business process re-engineering (BPR), pre-fabrication and standardisation, pioneered in manufacturing, are beginning to produce benefits in the construction industry. Technical issues are important and need to be improved, and without their improvement much of the success achieved so far would not have been possible, however, the biggest problem is that of a non co-operative culture (Lazar<sup>3</sup>). Quantum improvements in the construction industry, as required by the improvement targets, will not be attained purely by technology transfer from manufacturing. Significant improvements can only occur by a culture change coming from within the construction industry and dedicated to changing the culture from adversity into one of co-operation.

Even the simplest of construction projects involves many different participants assembled into a once only team. The organisational structure of the construction industry is shown in Figure 1, and illustrates the range of contributors that are required for a construction project.

Figure 1: Construction industry organisational structure

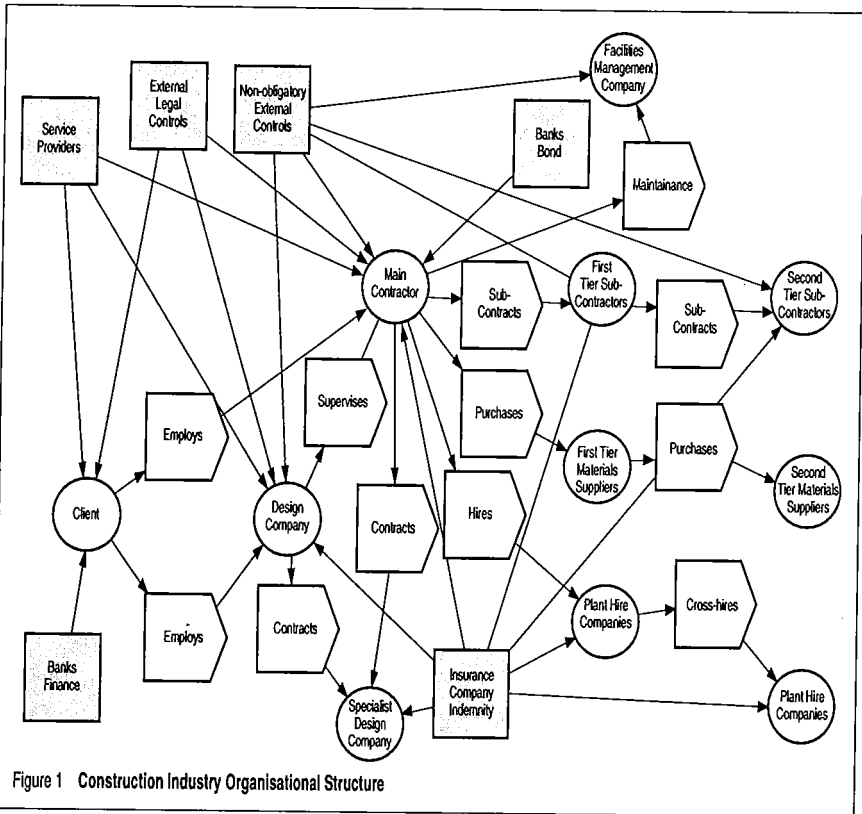


Figure 1 Construction Industry Organisational Structure

As a result of the highly fragmented nature of construction, the industry is blighted by adversity, poor quality and cost and schedule overruns. It has been recognised that construction costs need to reduce, together with construction schedules and generally better value for money needs to be provided. The reasons for these failures can be directly attributed to a lack of co-operation between the parties to a construction project (Brown<sup>4</sup>).

The fierce competition generated by competitive bidding based on lowest price has led to contractors bidding as low as possible to get work, but looking to contractual aspects of the work to obtain additional payment. Pursuing these objectives leads to adversity. The level of adversity in the construction industry is reflected in the anecdote that by the 1980s, the two main products of heavy construction were claims seminars and new attorneys firms specialising in construction litigation (Lazar<sup>3</sup>). In the UK in 1995 the top ten law firms specialising in construction litigation made higher profits than the top ten construction companies but with less than 0.1 per cent of the turnover.

There is a tendency for clients and contractors to assume an adversarial posture with each other as a result of the conflict between clients' costs and contractors' profits. This is essentially a no win situation since one party's gain is another party's loss (Larson<sup>5</sup>). This dynamic is further complicated since it permeates the supply chain between contractor and sub-contractor and contractor and supplier.

Designers and contractors are traditionally adversarial, inefficient and resistant to innovation (Tarricone<sup>6</sup>). Consensus estimates that 30 per cent of the cost of a project can be attributed to failures in the design-construct-manage process (Brown<sup>4</sup>). A significant proportion of these failures can be attributed to incongruent goals and the consequent divergence of the various organisations participating in a construction project (Nam<sup>7</sup>). This situation has been named divergence.

Management of the trade-off between the goals of cost, quality and schedule has been one of the central concerns of project management (Puddicombe<sup>8</sup>). Differing prioritisation of cost, quality and schedule as well as non congruent success criteria will cause conflict as to the definitions of a successful

project. This can lay the foundations for conflicting courses of action and adversity between the project participants. The need for a new contract strategy is clearly evident. Adversarial working is now being replaced by new ways of working in other industries (Towill<sup>9</sup>) and has shown great improvements. The scenario for a paradigm shift in the culture of the construction industry was proposed by Sir Michael Latham<sup>10</sup> in his report *Constructing the Team*, that proposed working in partnering arrangements.

Bates<sup>11</sup> recommends that the principles for non adversarial working should include shared goals arrived at through consensus, mutual trust and respect, new attitudes and behaviour, new means of communication and commitment from top to bottom. These new attitudes cannot be initiated contractually. They will only occur when the culture for co-operation replaces that of adversity in all parties involved in a construction contract. Valuable lessons can be drawn from a construction project where this occurred spontaneously.

### **Case study**

The benefits of co-operation in construction are demonstrated by analysis of the construction project for the stabilisation of Hurst Spit. The work involved transporting 125,000 tons of 6 to 10 ton rocks from Norway and placing them with precision in a designed grid. In addition, the spit was replenished with 250,000 tons of shingle, dredged from the shingle banks in the Solent and pumped ashore.

Hurst Spit is a shingle spit formed at the end of the Pleistocene period and located at the eastern end of Christchurch bay on the south coast of England. It is approximately 2km long and at its seaward end reaches a point approximately 1250m from the Isle of Wight. The spit now protects the coastal areas of the Solent to the east, both on the mainland and the Isle of Wight, and salt marshes in its lee, a Site of Special Scientific Interest (SSSI), from Atlantic storms. Historically the spit was nourished by littoral drift from the west, however, as early as 1609 repairs were made to the spit after storm damage. Coastal protection works to the west, which began some 100 years ago, cut off the shingle supply for re-nourishment of the spit. In 1974 the New Forest District Council took over responsibility for

coastal protection from the Borough of Lymington and in 1981 commenced a programme of annual re-nourishment of the spit. Due to the threat of extensive damage to property and the salt marshes that would occur as a result of the spit being breached a more permanent stabilisation scheme was developed.

The project was additionally complicated as a result of being a new and untried design and it was not possible to accurately predict the standards of work which could be reasonably expected for certain parts of the works. In addition the project was in an environmentally sensitive area with a high public profile. Delays in completion before the onset of winter storms could have resulted in a serious breach of the spit and hence catastrophic consequences both to commerce and the environment. A breach in the spit would have led to flooding of the nearby low-lying areas with consequent disruption to agriculture and business, as well as damage to residential property.

The contract was prepared with the expectation that it would be a traditional adversarial contract and use the traditional contract documents. However, the individuals named in the contract to act on behalf of the client, were keen to work in a non-confrontational manner. The main contractor was of similar mind and had already adopted the philosophy of treating others in the way they would wish to be treated themselves. It is interesting to study how this wish to work in a non adversarial way was transformed into reality.

The start of the project was delayed for six months due to protracted negotiations with the Department of Transport for dredging licences. This delay provided time for the contractor, client and engineer to develop a co-operative and trust based relationship. When construction eventually started cautious optimism existed between the parties for a non-confrontational project, which over time developed into a high degree of trust which all parties strove to maintain throughout the contract. Evidence of the success of the co-operation which evolved can be found in the fact that during the entire project, no contractual letters<sup>†</sup> were written by any of the parties and that site meetings were not used for resolution of problems, as these were routinely sorted out on site, but principally for maintaining contact between all of the parties, and as a result meetings rarely lasted more

than one hour.

It must also be noted that considerable pressure existed with the contractor who was trying to complete the work before the winter weather closed down all work; a situation exasperated by the delay in the award of the dredging license.

The success of the project is summarised in Table II which compares the results of the project with the UK performance improvement targets shown in Table I.

| Performance Metric     | Project Performance |
|------------------------|---------------------|
| 30% cost reduction     | Achieved            |
| 25% duration reduction | Achieved            |
| zero defects           | Achieved            |
| 20% user benefits      | Exceeded            |

Table II: Project performance

The study of this project has revealed the mechanisms required for co-operation, and research into the wider construction industry has identified the causes for non co-operation. This project provides evidence of the benefits to the construction industry of a co-operative way of working. The requirements for a cultural change in the attitudes of the construction players has been identified and the importance of mutual trust and common purpose highlighted.

### **Organisational trust**

The presence of trust based relationships, or relationships which resemble those based on trust, does create an economic advantage in conducting business (Zaheer<sup>12</sup>). The higher the level of trust in the relationship, the lower the cost of doing business, and the higher the level of effectiveness to do businesses (Bromiley<sup>13</sup>). Trust in the context of business has been defined by Hosmer<sup>14</sup> as:

Trust is the reliance by one person, group or firm upon a voluntarily accepted duty on the part of another person, group or firm to recognise and protect the rights and interests of all others engaged in a joint endeavour or economic exchange.

A critical factor in this definition is the concept of reliance. Reliance implies one party placing its well-being in the hands of another with only limited protection. It also implies that the party relying on another will forbear to act defensively until it is proven with reasonable certainty that the other party has become no longer trustworthy. In a trust based relationship, there can be slippage in both the timing and proportionality of reciprocation, because the mind set of the parties is, or ought to be that all unevenness between the parties at a given point in time is a temporary phenomenon and will eventually be evened out. Consequently, the occasional lack of timely reciprocation or a disproportionate response would not cause the affected party to either retaliate or take on a defensive posture against the offending party.

There are other classes of relationships which appear to be trust based but are much more fragile and only emulate trust based relationships. One of these can be termed a reciprocal based relationship. In this relationship, co-operation between the parties provides maximum group benefit. When one individual or party makes a co-operative move the other party reciprocates. Over time a relationship, mimicking a trust based relationship emerges. However, any action which is seen to be non co-operative or untimely produces a swift and adversarial reaction. The outcome is a rapid change to a highly competitive negative strategy aimed at maximising both self gain and the other party's loss. This is a more extreme strategy than just maximising self gain. In a violated trust based relationship this might be the ultimate outcome but it would take much longer to reach the same level of antagonistic behaviour (Friedland<sup>15</sup>).

Given the fuzziness of the boundary separating trust based and reciprocal based relationships and the fact that both lead to similar outcomes of co-operation, is there any value in ascertaining which type of relationships exists, within an organisation?

The implications are definitely significant. In a trust based relationship, the timing and proportionality of each reciprocal action are not super critical. As long as the expectation of the final equity between the parties remains, there can be interim periods of inequality.

In a reciprocal based relationship, however, the timing and proportionality of each reciprocal act is critical. Failure to

reciprocate in a timely or proportionate manner, particularly when there is a pattern of non-reciprocation, can quickly send the relationship into a downward spiral from apparent trust to aggressive hostility (Friedland<sup>15</sup>).

In a reciprocal based relationship each side actually determines its response based on the actions of the other party. In any relationship, emulating a trust based relationship, each party is willing to give the other the benefit of the doubt of untimeliness but will react adversely to the first potentially hostile move. At this point, the reacting party moves into an aggressively competitive stance. This adversarial stance can be extremely hostile and decision making is oriented towards making gains by causing the other party to suffer losses. This change in relationship is described by Friedland<sup>15</sup> as the fast track route from co-operation to litigation.

There is, however, a methodology for successfully managing a reciprocal based relationship and making it look and act like one which is trust based. The key is to first identify it as a reciprocal based relationship and to then scan for concessions or acts of goodwill that the other party is making. These need to be identified, acknowledged and quickly reciprocated. This is not always possible, and sometimes concessions or acts of goodwill are not always easily identified. To mitigate the effects of failing to recognise concessions or acts of goodwill, multiple, clear lines of communication must be established and maintained within the organisation so that misunderstandings can be quickly remedied. If reciprocation has to be delayed or is disproportionate, this should be clearly communicated to the other party, together with a statement of how equality will be restored.

### **Co-operative dynamics**

The motivation for a co-operative way of working is a culture not an agreement. There is no need for special forms of contract or agreements, especially as these will not necessarily guarantee co-operation. However, lessons from construction show that it is of absolute importance that the culture for co-operation be augmented by prompt and fair payment throughout the supply chain. Late and unfair payment are not the ethics of co-operation.

The principle means for achieving organisational integration

can be broadly classified as contractual and social psychological methods. These two approaches embody different assumptions about company dynamics and therefore develop different approaches for integration. This paper focuses on the social psychological approach. Previous research by the Business Engineering Group has shown that contractual methods of integration have limited value. The project at Hurst Spit achieved successful organisational and inter-organisational integration and demonstrated that trust was the key element to integration (Brown<sup>16</sup>). A member of the team for this project stated "as soon as you write down a formal agreement you lose the element of trust which drives the whole set-up. If the will is there you don't need the formal arrangement, if the will is not there you won't create it by writing it down".

The two dynamics for a successful organisation have been identified as communication and motivation (Bowers<sup>17</sup>), of which the most important is communication. Common ownership has been proposed as a mechanism for achieving motivation implicitly by providing congruency of expectations. The reality is that motivation develops from a trust based relationship. Common ownership in itself is not sufficient to develop motivation and can sometimes produce adversity and resentment. Recent discussions on the Southampton Co-op Network mailing list have demonstrated the problems associated with equal pay to all members: there is clearly a notion that pay differentials must exist to provide fair reward for the perceived input to the organisation. Thus, divergence can result from dissatisfaction and perceived under valuation. This situation can only have detrimental effects on motivation.

The most important dynamic for a successful organisation is communication, and it is true, that common ownership should provide and encourage greater communication. Unfortunately, this forum is frequently under exploited and the authors have been witness to disputes arising both within and between co-operative organisations through lack of communication.

## **Organisational conflict**

Conflict within and between organisations is frequently due to human factors and the way in which these human issues are managed. The predominant causes of conflict are classified in

| Cause of Conflict                | Summary   |
|----------------------------------|---|
| Task interdependency             | Conflict resulting from dependency upon others (eg for information, feedback or completion of a task) |
| Organisational differentiation   | Conflict due to different groups of people perceiving the same thing differently                      |
| Values, interests and objectives | Conflicts arising from misalignment of personal goals with the project goal                           |
| Communication obstacles          | Conflict arising from personal or organisational barriers to communication                            |
| Tension                          | Conflict resulting from unresolved and mounting interpersonal tensions                                |
| Personality traits               | Conflict escalation due to lack of understanding or inability to manage personalities encountered     |

Table III: Most frequent causes of organisational conflict

### *Conflict due to task interdependency*

Task interdependency is the extent to which two or more social units, people or groups of people, depend upon each other for assistance, information or compliance to perform their respective tasks (Walton<sup>18</sup>). This trait is analogous to the finely tuned relationships that exist between the players of the most successful football teams. The entire structure of an organisation is based on multiple social interdependencies that are established between members of the organisation and amended as people leave or join that organisation. These interdependencies grow in depth and complexity with the life of the organisation. Hundreds and sometimes thousands of tasks have to be undertaken by different sub-groups within the organisation to produce an output.

Dysfunctional conflict related to task interdependency has been a significant cause of project failure within the construction industry (Gardiner<sup>19</sup>). In terms of organisational design, good communications and shared understanding are particularly important, especially when activities are linked by reciprocal interdependency. When organisations or groups within an organisation are communicating at cross purposes, either due to a simple misunderstanding or because of prior assumptions, beliefs or when they are just failing to communicate at all, the seeds are sown for conflict at a later stage.

Organisational team building does not remove or reduce these interdependencies, but it can be used to strengthen the relationships and increase the trust between parties. This will then minimise the damaging consequences of non-conformance by any party and create a better understanding and appreciation of the organisational networks. Team building in this context helps members of the organisation to see beyond their own limited boundaries of operation and provide an incentive for each member to help meet the needs of the other members.

### *Conflict due to differentiation*

There is an optimal degree of differentiation for every organisational sub-unit, defined principally by the degree of uncertainty in its environment. It can be concluded, therefore, that over differentiation or under differentiation can be a cause for conflict (Lawrence<sup>20</sup>). This is a particular problem in the construction industry where project organisations are created from functionally separate, geographically separate and often culturally separate organisations, meaning that high differentiation exists even for small projects. The result of high differentiation is that members of one camp within an organisation often regard members from another camp with wariness and caution. Although organisational differentiation is an established concept, which has received significant attention in many large organisations, smaller organisations and co-operatives in particular have failed to address the problem. Dysfunctional conflicts due to high differentiation still occur with great regularity.

Team building which brings people or organisations together enables some of the differences to be smoothed out. This process

allows members from different organisational backgrounds with different mind sets to become familiar with and to learn to understand better where the other participants are coming from. A commonly accepted view can eventually emerge, in the vein of "we all agree to accept that the glass is half full and not half empty". This brings with it a congruent increase in trust and allegiance to the organisation and not just a participant's individual part or contribution. The benefits of team building will be particularly apparent within a virtual organisation.

### *Conflict due to differing values, interests and objectives*

Organisations are composed of and influenced by a diverse range of people, with competing as well as common interests. The interests of participants are based on values that may or may not have relevance to the organisation. The same problem also extends to inter-organisational groups. If aberrant interests are shared by persons collectively within the organisational structure, then a potential for inter-group conflict exists. The challenge is to be aware of and manage these interests to obtain a balanced set of best interests for the organisation.

The need for a shared common goal is one of the requirements for successful organisational teams (Adair<sup>21</sup>). Many members of an organisation are only briefed on their particular input and not provided with a more holistic picture of the organisation's goals and expectations. Not surprisingly, this frequently results in needless misunderstandings and conflicts.

### *Conflict due to communication obstacles*

Barriers to communication can be attributed to organisational or personal obstacles. In most organisations common experience eventually reduces communication barriers. However, many examples in a wide range of organisations exemplify the tenet that the less each individual knows about each other's job, the less collaboration occurs and that this lack of knowledge can lead to unreasonable demands through ignorance (Miller<sup>22</sup>). Effective communication is the key concern for any serious attempt at team building.

### *Conflict due to personality traits*

Certain personality attributes can increase conflict within an organisation (Walton<sup>18</sup>). Most relationships involve mixed motives and therefore require a degree of behavioural flexibility if they are to be managed optimally. Organisation members who are unable to adopt this flexibility when appropriate may be drawn into and cause an escalation of unnecessary conflicts.

Psychometric testing may alert an organisation to these problems, but even without such testing, which is seen by many as intrusive and unwelcome, a team building event will almost certainly bring out these characteristics. This will then enable strategies to cope with the problem to be developed in a proactive and beneficial way.

### *Case for team building*

The decline of pyramidal organisations in recent decades has been mirrored by the growth of other organisational forms. In the 1990s, teamworking, networking and co-operation are some of the more important forms that have dominated the debate in organisational design (Harland<sup>23</sup>). The problem being experienced by current organisational practice is a failing to meet the demanding requirements of today's socially complex organisational environments. Organisations are still hampered by a high incidence of dysfunctional conflict.

Team building provides a method for organisational development and has the potential to achieve significant lasting effects in a relatively short time. Organisations undergo change and modifications as time progresses. These can vary from structural modifications to metamorphic change, bringing with them a changing set of organisational needs. The trust and opportunity for communication facilitated by team building provides the members of the organisation with the confidence to adapt to changing demands and needs.

The importance of developing an organisation as a social unit is described by Zander<sup>24</sup>, who states that "responsible members make their group stronger if they help participants recognise they constitute a whole, want to remain as members and want to do what the group needs." The use of team building techniques is a convenient mechanism to accelerate the

integration process which is necessary to override the effects of differentiation and people's shortcomings.

The chemistry needs to work between the members of the organisation. Teambuilding allows members to interact socially and observe other members. Even simple measures like this can reveal unwelcome organisational aberrations that can be avoided or resolved before conflict arises. An organisation whose members have learned to communicate effectively provides a firm foundation from which to develop the organisation and to deliver greater value to the client.

The key to understanding organisational effectiveness lies in the ongoing interaction processes that take place among the members of the organisation as they work on a task. Members of an organisation who work together but do not share with one another uniquely held information critical to the task in hand can cause the quality of the resulting output to suffer. Team building within an organisation provides the opportunity for the members of that organisation to interact with and learn from each other at a time when the cost of making mistakes is small and the stakes are low.

### *Removing barriers to co-operation*

The organisational barriers to co-operation can be grouped into four categories, of which one is external to the organisation and the other three internal:

- Intrusions from the outside world (external)
- Organisational climate (internal)
- Organisational culture (internal)
- Organisational structure (internal)

Intrusions from the outside world can cause significant barriers to co-operation. These arise as a result of a misconceived belief that co-operation equates to bureaucracy. This leads to a reluctance by the outside world to trade with a co-operative organisation due to the perception that decision making will be by committee and the organisation will lack dynamism, and hence be stagnant and resistant to innovation. Thus to the outside world, the co-operative organisation is seen as a dinosaur rather than a market leader, bringing increased external pressure to the

success of the organisation.

There is no single way to deflect this negative pressure, however, one successful way is to encourage potential critics to "buy into" the organisation and demonstrate the flexibility and innovation that can be achieved by co-operation. Another way is by championing the benefits of co-operative principles. In a trust based co-operative organisation client care will be paramount since internal conflict is eliminated and all efforts are directed to client satisfaction.

Organisational climate refers to a situation and its links to the thoughts, feelings and behaviour of the organisational members. It is temporal, subjective and subject to direct manipulation by people with assumed power and influence. Co-operation cannot exist when a situation can arise, either by chance or design, which adversely impacts on the ability of the organisational members to perform.

These obstacles can be alleviated by identification of situations which detract from the organisation's performance. Once these situations have been identified, procedures and processes need to be incepted to mitigate and eliminate their effect, or preferably to prevent their occurrence in the first place.

Organisation culture, in contrast to climate, refers to an evolved context within which a situation may be imbedded. It is rooted in history, collectively held and sufficiently complex to resist many attempts at direct manipulation. A negative aspect of culture is the passive acceptance of continuing to carry out a task in a certain manner for no better reason than that is the way in which it has always been undertaken. This aspect of culture can be the cause of a major barrier to co-operation. If the culture for non co-operation exists then cultural resistance to change prevents it from occurring.

Cultural change to enable co-operation can only be achieved by collectively removing barriers which prevent its occurrence. This is the major problem within the construction industry where the culture for non co-operation, conflict and adversity is so deeply entrenched that it is difficult to change. Short term changes to culture can be produced by radical actions, such as a massive infusion of new personnel into the organisation. However, without collective support for the culture change brought about by radical actions the previous culture will soon resurrect itself.

Organisational structure refers to the formal patterns of

activity and decision making within an organisation and its external environment. Structure is created both by design and formed by an organisation's evolution. There are a multitude of perspectives as to the evolution of organisational structure, but management and time play the principle roles. If the organisational structure is such that various groups or individuals within an organisation hold equal levels of authority, then it only requires one group or individual to be resistant to co-operation to prevent co-operation occurring entirely.

This obstacle can be removed by education. The wishes of the majority must be expressed to the minority and consensus for co-operation reached. When this is done well, members of the organisation previously opposed to co-operation will frequently champion the cause.

## **Conclusion**

The construction industry is endemic with conflict and adversity. In an effort to rectify the situation various attempts have been made at contractually forcing co-operation. This has had limited success. Organisations working together in a co-operative environment guided by mutual goals provide a viable alternative to the industry malaise of litigation and claims.

This is proven by the study of a construction project where co-operation occurred spontaneously. It was shown that it occurred because a culture change had been brought about which gave individuals and organisations the freedom and confidence to work together with mutual trust and respect. This project demonstrated the massive benefits that can be achieved by co-operation.

The understanding of the problems and the lessons learnt in construction are directly transferable to other organisations, particularly organisations wishing to work in a co-operative manner, since the primary cause of disfunctionality identified in construction is a lack of co-operation and trust. Technical improvement methods used in manufacturing have had limited success in construction. The major stumbling block to increased performance is the required change in the culture, roles and expectations of the participants. A combination of organisational and technological integration is required.

It was found that there are many obstacles to co-operation, all of which can be overcome if trust exists between participants. Trust has been shown to be the motivator and driving force behind co-operation and can only occur when the mind set of the participants is focused in this direction. There are relationships that mimic trust which need to be identified and carefully managed if an organisation is not to degenerate into adversity.

This paper has identified and investigated the causes of individual and organisational conflict and the organisational barriers to co-operation. The benefits of team building have also been espoused and the ability of team building to eliminate conflict described. Six causes for human conflict within an organisation have been investigated and methods of resolution proposed. However, the truly co-operative organisation will eliminate the causes of conflict rather than resolving the dispute.

Co-operation is also inhibited by organisational barriers. These barriers take four forms, three internal and one external. Of these the greatest barrier to co-operation is organisational culture. In the construction industry this has thwarted almost all efforts to achieve co-operation.

The lessons learnt from the construction industry are common to many other organisations. Co-operation will not occur whilst there are obstacles preventing it. The first task is to identify what these obstacles are, and then set about removing them. Organisations that undertake this process will be able to achieve co-operative working and reap the benefits and rewards associated with it.

This paper has presented the obstacles to co-operation. A forthcoming paper will provide a toolkit for achieving co-operative working.

**D C Brown is Senior Research Fellow, Business Engineering Group, Department of Civil and Environmental Engineering, University of Southampton. M J Riley is Chairman, Business Engineering Group, Department of Civil and Environmental Engineering, University of Southampton. K A Killander is Contracts Compliance Officer, Southampton Area Co-operative Development Agency.**

<sup>†</sup> Contractual letters in construction are used to draw the attention of a participant of failure to perform in accordance with the contract and inevitably leads to claims for additional payments to the contractor, naturally, such moves are resisted by the client.

## References

- 1 Birchall J. *Co-operative Values and Principles: a Commentary*. Journal of Co-operative Studies, 1997, Vol. 30, No. 2 (No. 90).
- 2 Department of the Environment, 1993.
- 3 Lazar F.D. *Partnering - New Benefits from Peering Inside the Black Box*. Journal of Management in Engineering, 1997, Vol. 13, No. 6, pp75-83.
- 4 Brown J. *Partnering to Save Troubled Projects*. Journal of Management In Engineering, 1994, Vol. 10, No. 3, pp22-25.
- 5 Larson E. *Partnering On Construction Projects: A Study of the Relationship Between Partnering Activities and Project Success*. IEEE Transactions on Engineering Management, 1997, Vol. 44, No. 2, pp188-195.
- 6 Tarricone P. *Cranes, Concrete, Construction . . . And Computers*. Civil Engineering, 1992, Vol. 62, pp44-47.
- 7 Nam C.H. and Tatum C.B. *Noncontractual Methods of Integration on Construction Projects*. Journal of Construction Engineering and Management-ASCE, 1992, Vol. 118, No. 2, pp385-398.
- 8 Puddicombe M.S. *Designers and Contractors: Impediments to Integration*. Journal of Construction Engineering and Management-ASCE, 1997, Vol. 123, No. 3, pp245-252.
- 9 Towill, D.R. *Supply Chain Dynamics - Change Engineering Challenge of the Mid-1990s*. Proceedings of the Institution of Mechanical Engineers, 1992, Vol. 206, pp233-245.

- 10 Latham Sir Michael, *Constructing the Team*. HMSO, 1994.
- 11 Bates G.D. *Partnering in Small Packages*. Journal of Management in Engineering, 1994, Vol. 10, No. 6, pp22-23.
- 12 Zaheer A. et al *Does Trust Matter? Exploring the Effects of Interorganisational and Interpersonal Trust and Performance*. Paper #214, 1995 Carlson School of Management, Strategic Management Research Centre, University of Minnesota, Minneapolis, Minn.
- 13 Bromiley P. and Cummings L. *Transaction Costs in Organisations with Trust*. Research and Negotiations in Organisations, 1993, Vol. 5, pp219-247.
- 14 Hosmer L.T. *Trust: The Connection link between Organisational Theory and Philosophical Ethics*. Academy of Management Review, 1995, Vol. 20, No. 2, pp379-403.
- 15 Friedland N. *Attribution of Control as a Determinant of Co-operation in Exchange Interactions*. Journal of Applied Social Psychology, 1990, Vol. 20, No. 4, pp303-320.
- 16 Brown D.C. and Riley M.J. *Hurst Spit Stabilisation: A Partnering Case Study*. Proceedings of the Institution Civil Engineers, November 1998.
- 17 Bowers D.G. *Work Organisations as Dynamic Systems*. Technical Report, 1969, 30th September, Institute of Social Research, University of Michigan.
- 18 Walton R.E. and Dutton J.M. *The Management of Inter-departmental Conflict: A Model and Review* Administrative Science Quarterly, 1969, Vol. 14, pp73-84.
- 19 Gardiner P.D. and Simmons J.E.L. *Conflict in Small - and Medium-Sized Projects: Case of Partnering to the Rescue*. Journal of Management in Engineering, 1998, Vol. 14, No. 1, pp35-40.

- 20 Lawrence P. and Lorsh J. *Organisation and Environment* 1967. Harvard Business School, Boston, Mass.
- 21 Adair J. *Effective team Building*. 1986, Gower, Aldershot, England.
- 22 Miller E.J. *Technology, Territory and Time*. Human Relations, 1959, Vol. 12, pp243-272.
- 23 Harland C.M. *Networks and Globalisation - A Review of Research*. EPSRC Rep. Grant No. GRK 53178, Warwick Business School, University of Warwick, England.
- 24 Zander A. *Making Groups Effective*. 1982, Josse-Bass, San Francisco, California.