

Performing a Construction Contract Amidst the Challenges from Externalities, Domestic Deficiencies and Trade Discipline.

1. Externalities

In general, our systems are functioning tardy. Starting from government agencies' procedures in issuing construction permits the delays are experienced generally in: payments; transportation systems; supply chains and material shortages; Inherent less time commitments from large informal sector involved; providing leave required by staff and labour as per laws, their family health concerns, schooling matters, domestic legal or regulatory authority matters, social events and other holidays; strike periods; power cuts, water cuts, telecommunication break down periods; adverse weather conditions and with unrealistic time estimates. Hence, a project delivery on time is almost an impossibility locally and it is seemingly evident.

The national level; transport, education, regulatory, public welfare, banking, social protection and other administrative systems or mechanisms are not very convivial for construction industry. The intermittent price and parity rate fluctuations are affecting the contract prices. Risk of same is passed on to the contractor or the developer as per the terms of the contract agreements. Specified Human Resources in the contracts cannot be found in the country as many have migrated and good professionals and technologists are used by other countries. Banks have now degraded the construction industry in terms of providing financial assistance and in fact impose constraints, may be due to nonperformance in debt repayments.

However, the terms and conditions are of international level while local context is a different puzzle, hence those international standards becomes unfair terms for local context.

Despite of that the construction contractors are supposed to beat these national issues and perform as per the contract agreements entered into. This is a mammoth challenge and which has resulted and promotes corruption as well.

Contractors have to deal largely with informal sector whereas the clients have formal contracts with the contractor with delay damages, payment withholding and other punitive clauses. The unregulated informal sector doesn't have an ability to perform timely or on an agreed cost under formal contracts. Consequently, the complete risk of performing the contracts comes on to the general or main contractor.

The continued scarcity of construction labour has been a topic in discussion for decades. Young generations' reluctance to join construction trade is due to various reasons including poor societal recognition, lack of social protection, on site hard work, no job security but on hire and fire basis, unsafe working conditions, attractive alternatives available such as driving taxi, potential internal and external migration. As per the labour force survey (2017) conducted by the Department of Census and Statistics total labour engaged in construction is 687,544.00 in year 2017. It may be around 400,000.00 site workers available locally for construction including migratory labour to other industries such as agriculture and fishing. Foreign labour use has become an alternative for the local labour shortage for major constructors in large construction works who could afford such additional costs.

It should be noted that the drug addicts are also there in the construction labour force and contractors are facing issues with such persons bringing various narcotics to sites.

Adding more risk to the situation client's main obligation of honoring the payments on time is rare as per the contracts, in particular the government projects, and nonpayment has become a habit. The interest entitlements as per the contract clauses on delayed payments is not the overdraft interest contractors pay to the banks. Even that too are not paid, and in some cases the amounts due under adjudication decisions are not honored. Contractors have not got right to suspend the contracts or demand for time extensions on normal payment delays, unless it is a prolong delay, as per the standard forms of contracts and which will anyway not resolve the matter but may create more adversarial situation.

Under the circumstances performing a contract in a tardy national system, large informal sector of casual work attitude and without guaranteed payment mechanism is almost an impossibility. With such difficulty what is being done is admirable and however large number of contracting firms have gone out of business with these hardships, mainly the small and medium level. Naturally developers are keen to have better Return on Investment. Designers are demanded to acquire the maximum possible salable area in building constructions. When it comes to construction this may have reduced the spaces for site logistics management. However, optimizing the usable area will benefit commercially the developer during whole life of the building. In urban areas it is commonly seen that concrete mixer trucks are parked on the roadside during concreting and materials are unloaded on to road shoulders or pedestrians' walkways aggravating traffic congestions. This is not the case in many developed countries where constructions are mostly confined within the site hoardings.

The contractors are usually lament about the inconsiderate design approaches without giving due regards to the buildability and practical difficulties of construction activities, which leads to high wastage, less productivity, more time to complete the activities, quality issues, defects and the like. Bringing the personalized housing details in to high rise buildings and in repetitive building spaces are also a major concern of the builders. The efficient use of system formworks, standard product systems, new technologies, possible mechanization of activities, gaining advantage of repetition and productive use of scarce labour is prevented due to such detailing. Hence, the contractors' involvement in design stage or use of their practical construction knowledge is an important aspect to consider in designing.

2. Domestic Matters

While having significant risks due to externalities, the domestic or inhouse matters that can be controlled by the contractors themselves to minimize exposure doesn't appear convincing, as they submit low price bids, do not efficiently manage the advance payments and other funds of the projects. Most probably at least there is an under quoted project in the system of many construction companies and funds of other projects are diverted to that paralyzing the whole system of managing finances.

In many bid openings there is a substantially low bidder. Procuring entities may tend to award to the lowest if no alternative is found in procedures to select the other.

However, it is advisable to justify with such analysis the most responsive bidder in consideration of project completion rather than going with a lowest bidder who may not be able to perform the contract and whereby losing the purpose of project completion, probably with losing a contractor for the industry as well.

The low-price bids are submitted by certain small and medium level contractors could be due to following reasons;

1. secure a project to service the overheads,
2. to have cash in from advance payment form a new project,
3. mistakes in pricing, due to not reading and studying the documents to understand risks, obligations, buildability, specifications and the like,
4. underestimation by subcontractors and suppliers,
5. Lack of understanding of site conditions,
6. unhealthy competition,
7. incapable estimating persons and use of junior level staff not having adequate training,
8. poor record and data management,
9. poor communication,
10. inadequate time to submit bids and bidding for large number of projects at a given time,
11. computer mistakes by staff,
12. poor checking methods by senior staff and lack of checking time due to last minute finalizations,
13. eager to win against other rival bidders, and
14. trust in informal and corrupt methods to reduce losses during construction stage.

When a project is secured management of some contractors is keen to get the advance payment to meet initial expenses and then they allow project to happen from general cash flow available.

The safety and health practices of the industry are also not at convincing level. That too would add to reduction in productivity and losses in rectifying third party properties. Waste management and supervision to minimize rework are also areas that should be thought of. Rework cost can be a major unnecessary cost unless a preventive measures and quality assurance systems are properly implemented at site level. Design revisions and intermittently instructed changes also contribute to rework at sites. Labour and staff retention without having to find new persons often also need attention by the contractors. The loss of trained staff can be a major setback to the progress of the works. Writer has experience about huge rework costs spent by higher category contractors as well due to mistakes in lines, levels, setting out and poor quality management practices at sites.

Further, writer had experience in dealing with eight site Quantity Surveyors, three site managers and many technical officers in one project of two years construction period. In fact, such staff turnover happened in many projects That was not due to the employees were going abroad but due to human resource management issues.

Submission of interim valuations on time and accurately will ensure better cash flow. Writer has experienced that proper submissions doesn't happen even from major contractors sometimes. One reason for same is observed as inadequate staff at site to prepare interim valuations and high staff turnover. It is a common experience that the statement at completion or interim application at the time of taking over include large value and some parts of which would have claimed before.

In re-measurement contracts submission of measurements and quantification got to be proper and it is common to find calculation errors and quantification errors. Sometimes consultants' certificates also contain calculation errors.

Writer has received an interim payment application of 120 million of a 600 million contract at the time of taking over. Further, another payment application of 70 million after completion in a 500 million contract.

This is quite common in many projects and reasons could be that the contractors; expedite progress in last few months, not keen to value all works carried out timely with required documents, submitted variations are not substantiated early, do not finalize measurements required until such time project is substantially completed, not having required human resources for documentation works and inherited reluctance to spend for qualified staff.

In case of small and medium specialist contractors, the writer found they employ accountants to do the interim valuations and it make so difficult to convince some of them even simple things such as why cumulative values are considered in valuations, in fairness to them as they are from a different discipline. Not only that some accountants in client organizations questions why no retention is kept from advance payments. Such experiences have been there for long period and appears same is continuing for some reason. May be due to lack of training, understanding of the trade and / or lack of interest to do what is proper by the respective organizations.

However, institutions such as University of Vocational Technology and other technical colleges produces good technologists who could provide very good input for the SME sector. Should make them aware of benefits in using capable trained youth in SME's.

Refer below Diagram 1 for Small and Medium Level Contractors Composition.

Category	CS 2 (Over Rs. 3 billion)	CS 1 (Over Rs. 1.5 billion to 3 billion)	C1 & C3 (Over Rs. 150 million to 1500 billion)	C 4 to C9 (Up to Rs. 150 million)
Number of	13.00	3.00	151.00	3,947.00
Percentage	0.32%	0.07%	3.67%	95.94%

Diagram 01

(Source, Construction Industry Development Authority)

Construction industry quality management was on the basis of “quality control” (QC) till late 1990. With the foreign funded provincial road development packages around 2001 contractors were instructed to institute “quality assurance (QA) system” under FIDIC Conditions of Contract, First Edition, 1999 (Sub Clause 4.9). Writer remember it took five months to develop a QA system by even major contractors. However now QA systems are fully introduced (refer Sub Clause 4.17 of SBD / 02 published by CIDA) to both building and civil engineering sectors of the local industry with many contractors having ISO quality certification. However, it can be seen that essence of QA system practice is lacking in many instances where consultants still tend to do policing and patrolling the quality while contractors are not fully committed to assurance of the quality. QA is not only the defects prevention which could be seen physically but to understand and implement the designs to have; such ambiance in built environment, public health / safety, life of the product, resistance to vagaries of the climatic conditions, energy efficiency, reduced life cycle cost and the like.

Even the strength of and keeping proper cover blocks in reinforcement works is an important aspect in this respect. Whether the builders and their site technical personnel has the acumen and make full commitment to all aspects in the QA systems is yet unconvinced. In such an environment implementing design and build procurement system locally is a jeopardy.

Refer Diagram 02 below for details of QA and Total Quality Management (TQM).

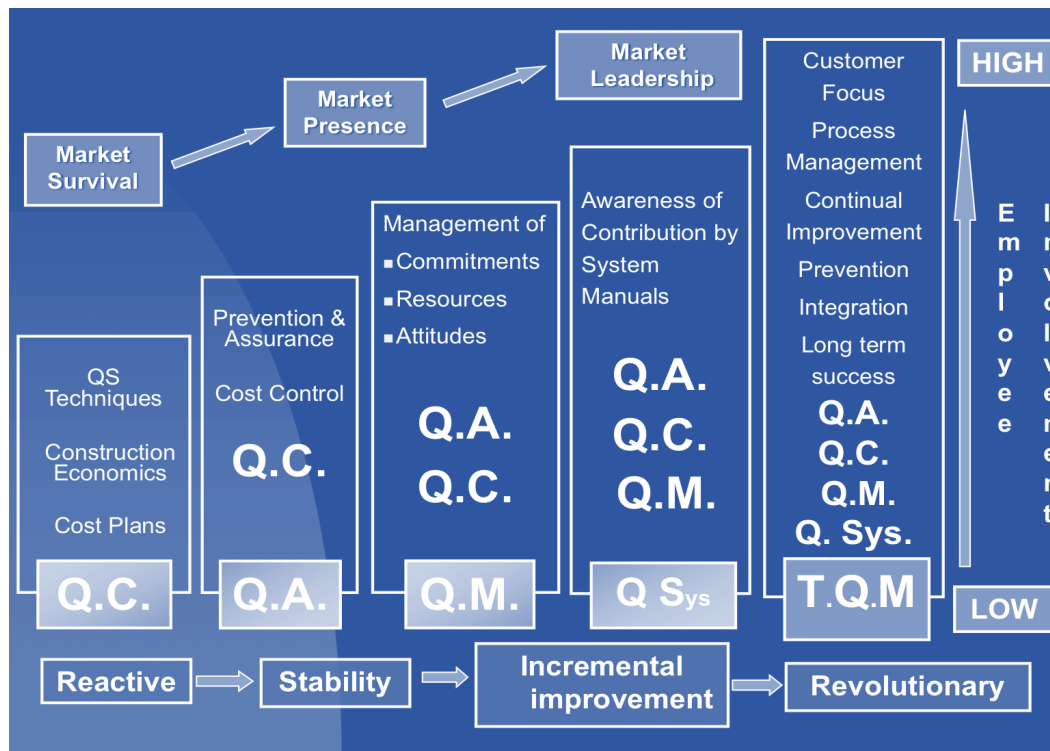


Diagram 02

(Reference; Jaafari A. (ed) (1997) International Conference on Leadership and Total Quality Management in Construction Industry, Institute of Engineers, Singapore.)

It is not uncommon that private sector also involved in corrupt practices. Contractors are also battling against pilferages, misappropriations and certain corrupt practices of staff in sites and offices. Such misconducts could happen through labour payments, suppliers' payments, subcontract management, over quantification of works and supplies, over ordering for pilferage etc. In road sites, water projects, irrigation works etc. where the works are spread over number of kilometers, controlling of materials' use is a challenge unless stringent controls are done. Contractors may need to use new technologies and management methods to combat these issues.

Poor contract management abilities could lead to loss of entitled payments and additional time. Record keeping is a crucial part of contracts management and plays an important role in terms of justification of additional cost and time claims.

The contractors head office engineering and estimating staff should visit sites frequently and support the site staff with required knowledge, educating on assumptions made in pricing, methods, materials, site management and cost controlling. They should gain exposure to technology used at sites, site logistics and actual cost norms. Head office and site should not be kept as separate entities but should be very interactive in performing contracts with regular feedbacks from each other.

Disciplined Trade

Many consultants and clients keep variations payments on hold without even making a payment on provisional rates. That is fundamentally wrong and some of them do these due to their internal procedures, but it is contractually wrong and make projects suffer and may be at the cost of public tax payers' money if it is a government investment. Disciplined and fair consultancy and contract administration practices also an important ingredient to improve the performance of the industry. Designers shall respect the buildability aspects and providing design drawings timely.

One of the reasons that contractors prefer design and build procurements to have the control of design with them, as they believe which will help them to provide their inputs to design and minimize delays. Providing detailed Mechanical, Electrical and Plumbing (MEP) drawings in building sector appears poor and many designers expect shop drawings using conceptual designs done.

On the other hand, changes required by clients' and designers, time to time with revisions to architectural drawings are common. This will entail number of revisions to structural and MEP drawings during the durations of the project. Then the structural engineering consultants are compelled to remodel their designs with reworking on design calculations and similarly in MEP designs. This is a difficult task if the fees charged are very competitive and hence developing designs for revisions through shop drawings falls on to the contractor except the design calculations and concepts in traditional procurements of building construction works. Whereas, in road projects detailing the design / cross sections with actual lines and levels and with such surveying is a BOQ item.

In providing services export in terms of preparation of BOQ's to middle east countries the drawing sets available for are very detailed and drawn in to layers properly. Hence, taking off quantities is very easy with software available. In fact, we are supposed to practice Building Information Modeling (BIM) now with the advancement of the construction industry technologies. We are far behind in achieving even the BIM level 2 (BIM level 2 involves developing building information in a collaborative 3D environment with data attached, there is commonality in the data structure which enables a federated BIM model to be produced). Refer Diagram 03 below.

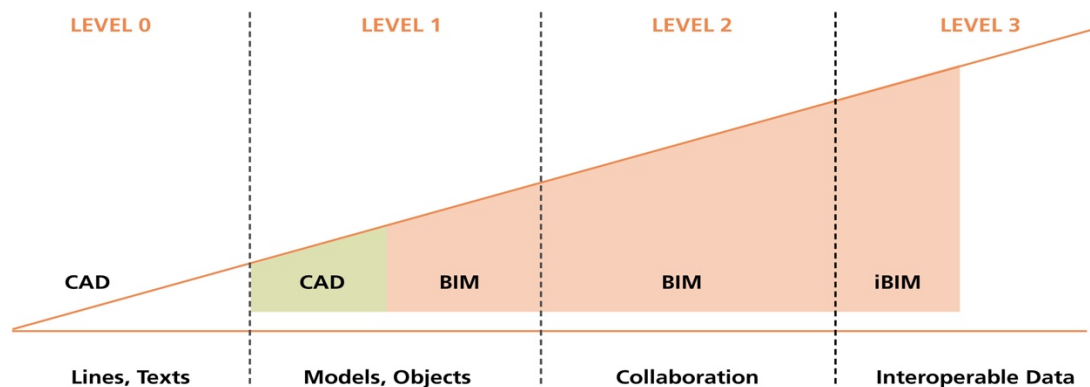


Diagram 03

(Reference: Bew & Richards, 2008/10)

How do we improve from the currently practiced very traditional largely scattered and fragmented design processes to collaborated design platform is a question remaining to be answered? Our regulatory authorities, other government agencies and universities should research and evaluate the obstacles including affordability of purchasing expensive software. There could be solutions. If we do not acquire such new technologies our service export sector may get affected badly and Sri Lanka will fall behind in the region in this regard. Not only that but our consultants or contractors may not be able to join, to have joint ventures or deal with international firms in large local development projects in the absence of new design and documentation technologies ownership in the respective disciplines.

The forms of contracts currently used in the industry will require a critical revisit to have contextualized forms of contracts for local industry including contract forms for lump sum, develop design and construct, construction management, management contracting, turnkey, subcontracts (both nominated and domestic types), subcontracts with designs, supply contracts and labour subcontracts.

Nonpayment or delayed payment to workmen, suppliers and subcontractors should be avoided unless there is a major delay of payments from the employer or client. A monitoring system to check by the clients whether the subcontractors and suppliers are paid shall be incorporated in the contract forms.

Contractors are making major inputs to the construction industry and without them it is not possible to discuss about a construction industry. It must be noted that the local contractors who were not involved in roads works in early 90's now engaged in expressways. In order to support them and the trade it is necessary to improve the systems in; domestic level, national level, policy level of the trade, education domain, training sphere, contextualizing standard documents and enhancement of management skills.

If the commercial banks are not providing the required support to construction industry the stakeholders should find an alternative financial support institution of development bank model to help the construction industry growth.

Conclusion

It is evident that there are many initiatives that can be taken are under developers, contractors, consultants, subcontractors, suppliers and other stakeholders' control, to make the construction industry a better trade for business, while certain issues are at policy level. It would be better to start from ourselves the mission with a good vision, so that policy makers can be convinced of the macro level needs.

A wholistic and united approach will be required by all the stakeholders, rather than disintegrating into various institutions or grouping, in improving the performance of construction industry including own domestic improvements, construction industry policy level advancements and national systems' augmentations with the other industrial sectors. Construction sector being a user of; all other products of other industries, use of large labour force, require various professional services and major portion of natural materials extraction is very sensitive to be affected from the deficiencies of other systems and supply chain.

Therefore, the advancement of construction industry in isolation may not be a possibility but shall be a converged effort by the stakeholders and policy makers.

A macro level approach to develop all the industries is required with more disciplined stakeholder performance and such early initiatives by the concerned parties are an urgent need at present.

We may have to be mere spectators of how Singapore, Malaysia, Bangladesh, Vietnam, Philippines and even Cambodia are performing better than us with around 7% economic growth otherwise.

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