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## Contracts and Construction

Contrats et exécution des travaux

Vertragsgestaltung und Bauausführung

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All engineering construction projects can be seen as made up of six essential components - Men, Material, Money, Transport, Tools and Time. In most developing countries most of these are inadequate, and chronically unavailable at the right time and at the right place. Ways and means have to be devised to obviate the inherent disadvantages due to the lack of skills - supervisory and craft, and limited amount of resources - capital, machinery and materials. Efforts need to be made to concentrate what is available to those locations where they can benefit the most. The existing modes and methods of the developed world although sufficient and successful in their own domain are just not so when transplanted to an environment or milieu that is yet basically agricultural. The problem here is not only the lack of physical infrastructure but even where that may exist it is the lack of "process of methodology" infrastructure. For example, in the case of pumping concrete to a site on any morning, it is necessary that the pump, the ready-mix concrete truck, the hoses, the workers be all there at approximately the same time. If something is amiss, then communication systems must exist that allow diversion of the pump, or the ready-mix concrete truck or whatever to another location if unnecessary expenses are to be avoided. What happens when the communication system does not exist? In the final analysis it may be better to do the whole thing in small batches either manually or with the help of a portable hand-driven or motor-powered concrete mixer on site. Thus the problem is not one of technology but of the lack of "methodology" infrastructure. Everyone involved has to instinctively understand or anticipate their role.

The elaborate division of specialties and sub-specialties of the developed world



requires a complete re-think and re-elaboration in the developing countries. Contracting for instance needs to be re-evaluated. Instead of having one prime contractor and two, three or more sub-contractors it may be advisable to have as many as five or six prime contractors on the same project at different times. Such a plan need not necessarily be limited to large/super projects, although the advantages there are greater when compared to smaller jobs. It requires the acceptance of more than one prime contractor on a job, generally an inconceivable thought in the developed world.

In an environment where supervisory skills are in short supply it is an excellent device whereby each different prime (sic sub) contractor concentrates his supervision, and limited skills and equipment to what they know best instead of having them take on responsibilities beyond their reach. It also entails a better profit margin for the contractor when he is a prime than when he is a sub-contractor. The greatest advantage to the client is that the bidding is not restricted to the two or three big boys that can do all the work but is open to the many smaller contractors who each can successfully tackle a part of the project.

Since the parts are smaller, the problem of financing and/or bonding is also eased as is the time span of the job. Instead of a project lasting two or three years for one prime and thus the sub - as he generally does not get his holdback paid till the completion of the project - it now lasts a much shorter period. Banks and other financial institutions one presumes are happier with shorter term risks than longer terms especially where construction is concerned. The client will be greatest beneficiary of such an arrangement, and in the economy of the developing world with limited resources it should be a major consideration as the government directly or indirectly - and thus the taxpayer - tends to be the largest purchaser of construction.

Not all is advantageous, of course that would be too much to expect. The major disadvantage may well be an increase in disputes if the earlier prime contractor does not perform satisfactorily in time or in terms of quality. A Judicious contract writing and specifications coupled with proper controls on the part of the client should eliminate that. The cost of these controls can be paid for out of the savings accrued by not having to pay for the primes' percentage markup of the subs costs (as there are no subs reporting to prime contractors). The disadvantage of having more contracts and thus more paper cannot be avoided, but the cost of the extra administrative work should be exceeded by the savings.

The pursuance of such a system or some variation thereof should create an attitude of self-confidence and pride in the local contractors. This will enable them to successfully tackle all kinds of projects, be they small or large, and thus an ever increasing pool of talent and skills so necessary for an efficient and strong construction industry.