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Chapter 1

General Features

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1.1 Parties to a Contract

The general conditions of a civil works contract normally defines the roles and responsibilities of three basic parties. Contract agreements are entered into between a Client, i.e. the owner of the assets to be created and a contracting firm, the executor of the works. In addition, the works are normally supervised and verified by a third party, the Engineer.

For every works project these parties needs to be identified. Once the local institutions, which will take on these roles, have been clearly identified, it is possible to carry out a detailed assessment of their current capacity and if required strengthen them through training and further technical, managerial and financial support, thereby ensuring that each party to the contracts will fulfil its operational responsibilities.

Construction contracts basically relate to three major parties, the client, the contractor and a supervising engineer. However, during the planning stage as well as during works implementation, it may be necessary to maintain the involvement of the users and the design team.

(i) The Client

Similar to when purchasing other goods and services, a works contract will have a client. The client can be an individual, such as someone wishing to build a house, or it may be a company or the government wishing to build or install some kind of utility. Normally, the client is identified as the organisation which requires a certain end product and has the authority and money to order and pay for it.

When the project is financed from public funds, whether it is with financial assistance from a donor, an international development bank or from regular government budget sources, the client is the government. For public works projects the client can be identified more in detail, such as a national roads authority, planning to rehabilitate a road, or the Ministry of Health building a clinic.

A basic assumption when dealing with any contract agreement is that the client is also the provider of the financing of the contracted works. Funds may originate from various sources such as the government treasury, road user funds, donors and local tax revenues. When the client enters into a contractual agreement, certain financial obligations are made, and in order to honour those obligations, it is essential that the required funds are readily available to the client. If these funds are not available, then the client is legally not in a position to award a contract.

In some contract documents the client may also be referred to as the owner, employer or the principal.

(ii) The Engineer

In terms of implementing works, the client often chooses to delegate the supervision responsibilities to a third party, the Engineer (also referred to as the Contracts Manager or the Superintendent). In situations where the work is dispersed over a large geographical area, it would seem natural for the client to choose an institution which is well represented at local level.

The duties of the Engineer, in the context of a works contract, are summarised in the table below:

The Engineer appointed by the Client to supervise the works, will be in charge of administrative, technical and financial control of the works, daily on-site supervision, issue of payment certificates and the final completion certificate. The Engineer shall be responsible for the following activities:

Administrative duties:

- | | |
|--|--|
| <ul style="list-style-type: none"> B maintaining daily site records and preparing progress reports on the status of the project, B ensuring liaison with the local authorities and institutions, particularly on matters such as land disputes, authorisations to carry out surveys, access to quarries, etc., B suggesting suspension of the works to the Client in case of serious flaws, | <ul style="list-style-type: none"> B issuing of the completion certificate and the maintenance certificate for the handing over of the works, B playing the role of a mediator in the settlement of disputes between the Contractor and the Client, B Ensure that workers are paid according to the schedule and rates agreed, B Arrange site meetings |
|--|--|

Technical duties:

- | | |
|---|---|
| <ul style="list-style-type: none"> B ensuring that the Contractor has complied with work standards, conditions of contract and the schedule of works specified in the contract, B informing the Client promptly of any defects for which the Contractor is responsible and which could be detrimental to the quality of the project, B providing technical and managerial advice to the Contractor, as needed, | <ul style="list-style-type: none"> B ensuring that the Contractor respects the planned time schedule for the works, B advising the Client on possible modifications in the plans, specifications and work methods, B ensuring proper execution of remedial works before final handing over of works. |
|---|---|

Financial duties:

- | | |
|---|---|
| <ul style="list-style-type: none"> B liaise with the clients representative to ensure regular budgetary provision for the work under contract, B carry out surveys with the Contractor to calculate the quantities of works actually completed, | <ul style="list-style-type: none"> B certifying monthly statements and submitting interim certificates to the Client for payment, B liaise with the client representative to ensure the timely payment of certificates. |
|---|---|

(iii) Contractors

The contractor is identified as the party which executes the physical work defined in a contract agreement. Contractors range in size from multinational firms with turnovers equivalent to several countries' national budgets to small firms operating within the local community.

The size of the contracting firms is important to bear in mind when identifying and selecting appropriate contractors for a specific type of work. The appropriate size contractors for a specific work programme is directly linked to the bid packaging. If the works are packaged into large lots of relatively high contract values, there will be a demand for attracting larger firms. If the works is split into smaller contracts, it may be possible to attract local firms already operating in the vicinity of the project areas.



For projects where the client has decided to apply labour-based work methods, the optimal solution is to target contractors who would use this technology as a main source of livelihood. Larger contractors are normally not interested in labour-based works contracts since the value of these contracts are considered to be too small.

Before a works programme is formulated and the appropriate modes of procurement is chosen, it is important to identify the various types of contracting firms which operate in the country. The table below provides a general description of the different types of contractors, categorised according to their size and the type of works they are capable and interested in carrying out.

Petty Contractors

This category of contractors usually consists of one man firms, sometimes assisted by a limited amount of tools and unskilled workers. They may be labour only contractors, usually consisting of a local businessman sub-contracted to carry out specific work, relying mainly on unskilled casual labour.

Types of Contractors		
Type	Description	Type of Works
Petty Contractors	<ul style="list-style-type: none"> Csingle person Clabour only Climited skills Cnot registered 	<ul style="list-style-type: none"> Croutine road maintenance, Clabour only sub-contracts, Cspot improvement works
Small-scale Contractors	<ul style="list-style-type: none"> Clocal builders Cpossess some basic equipment and hand tools Cregistered as tradesmen Ccapital security low Cpossess some technical skills but limited managerial experience 	<ul style="list-style-type: none"> Cbuilding construction, Csub-contracts for special skills, Cconstruction and repair of simple structures, Crural road rehabilitation
Medium sized Contractors	<ul style="list-style-type: none"> Cregistered Cpossess some equipment Ccapital security limited Centrepreneurial skills Ctechnical and managerial skills 	<ul style="list-style-type: none"> Croad gravelling works, Cmajor rehabilitation works, Cbridge and culvert works, Cconstruction of gravel roads
Large-scale Contractors	<ul style="list-style-type: none"> Cregistered Cgood access to equipment Cgood capital security Cproven entrepreneurial skills Cgood technical and managerial skills 	<ul style="list-style-type: none"> Clarge infrastructure programmes Ccomplex building projects Cworks appropriate for equipment-intensive work methods

Organised local community groups such as farmers associations and village welfare groups can also be classified as petty contractors.

A common feature for this group is that they are not formally registered. They do not possess any capital and are therefore extremely vulnerable to cash-flow distortions such as late payments. These contractors do not operate their accounts through a bank. Local banks will often not consider them as attractive clients and therefore do not provide them any services.

Petty contractors do not possess any equipment, and lack any means of

transport. Due to their lack of mobility, they need to be recruited from the vicinity of the work sites. These contractors are mainly used for maintenance works or simple, clearly defined sub-contracts requiring a minimum of skilled labour and equipment. After receiving appropriate training development assistance, these contractors can prove to be highly efficient in carrying out minor road rehabilitation works and routine maintenance. Some show good entrepreneurial drive, and given favourable conditions for their operation, such as a steady supply of work and regular and timely payment, they can survive and eventually emerge as small-scale construction firms and constitute an important component of the domestic construction industry.



Small and Medium Size Contractors

Small and medium size contractors are often characterised as the firms on the lower level of a classification scale. They can be located all over the country and often constitute the majority of the construction firms available in a country.

A common feature with this type of firms is that their financial capacity is limited. Some conduct their business through banks while others obtain their credits and maintain their savings and profit through other financial channels. Equally, their equipment fleet is limited and is often even more restricted in terms of heavy plant requiring large capital investments.

The strength of this group is their proven capacity as entrepreneurs. These firms have all carried out works contracts before and evidently managed to secure a profit from their business activities in the construction industry. This implies that they also possess a certain technical and managerial capacity through the employment of professional staff.

Due to their large numbers and ready availability also in the more remote parts of the country, they are attractive partners in decentralised civil works programmes since they do not necessarily need long periods and substantial resources in order to mobilise. Equally, they are well known in their local neighbourhood so their strengths and weaknesses are generally known among potential clients.



Due to their limited financial capacity, they are also vulnerable to cash flow distortions. Late payments of work may cause immediate delays in work progress since their liquidity is limited.

When further developing small-scale contractors to implement labour-based works, it is important to ensure that the authorities are able to supply a steady amount of works to the newly established "firms". In order to defend investments in terms of project development and training costs, a firm government commitment on future work prospects would be expected.

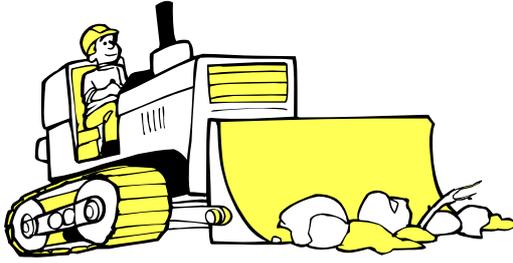
When the contractors are well established, they should be encouraged to look for assignments funded by other sources, thereby reducing the dependency on a specific project and a single client.

Large-scale Contractors

Really large scale contractors are normally only available in limited numbers in developing countries. Often, they are subsidiaries of a multinational companies or established as joint ventures between multinationals and local companies.

The strength of the large contractors is their solid financial capacity and ability to raise additional capital through commercial banks and other lending institutions. For this reason, they will also be able to provide any type of equipment required for the works execution. Equally, they can tolerate substantial delays in payments without experiencing serious cash flow problems. Due to their size, they will also

be able to influence government officials and thereby obtaining their payments within reasonable time.



The disadvantage of these firms is that they rely on their extensive equipment fleet for execution of works and are often reluctant to replace it with labour-based work methods. These firms will need to engage their equipment in order to recuperate their capital investments.

Also, they are normally only found in the major cities and have limited knowledge of local conditions. Due to their normal area of operation, they require longer and costlier mobilisation before they are ready to operate in remote areas.

For these reasons, they would only be cost-effective for large scale-projects which are confined to a limited geographical area. Smaller works widely dispersed over a large region would be less attractive to a large scale contractor.

Lastly, it is important to note that large contracts require more complex procurement procedures, often involving international competitive bidding. This is a time consuming process which may be avoided if the works is divided into smaller lots at contract values where local bidding procedures are allowed for.

The Users

In addition to the above three key players, it is important to take into consideration the future users of the assets created through a works contract. The users are more important during the design stage, in order to secure the desired level of functionality in the project. The future users have an important say in the location, size and design of the project.

Also the users need to be consulted to avoid any negative environmental effects caused by the project. For example, it would be important to consult with local residents on the exact alignment of a road passing through their village. Equally, when designing the drainage system for a road, it is important to discuss the detailed solutions for discharging the water with the local farmers along the road line.

The Designers

Designers have an important role during the planning and design stage. These consist of draughtsmen, architects, structural engineers, electrical and mechanical engineers, civil engineers and other specialists.

Not every project requires the services of all these professions. Smaller projects often combine the services of these professionals. Sometimes, the design work from a previous project can be used again, and often the client have standard drawings for a number of structures such as schools, clinics, irrigation structures, bridges and culverts. However, all these standard designs need to be adapted to fit into the real topographic conditions at each of the individual sites and be in harmony with the environment.

The designs will need to observe geometrical and functional standards (i.e. axle loads, max loads for bridges, etc.) and statutory requirements regarding construction standards and safety. Roofs must be able to withstand specified wind loads and fire regulations must be adhered to. The health and safety of people working in the buildings, both during works implementation and after completion, is safeguarded by legal regulations and these may have a substantial effect on the design and work methods applied.

Although the role of the designers are central during the identification and planning stages of a project, it is often necessary to revise plans and drawing when unexpected site conditions are discovered during the construction period. Also, the client may decide to carry out further changes to the design during the course of the construction. Equally, the users may demand improvements and changes to the original design once works have commenced.



1.2 Contracting Methods

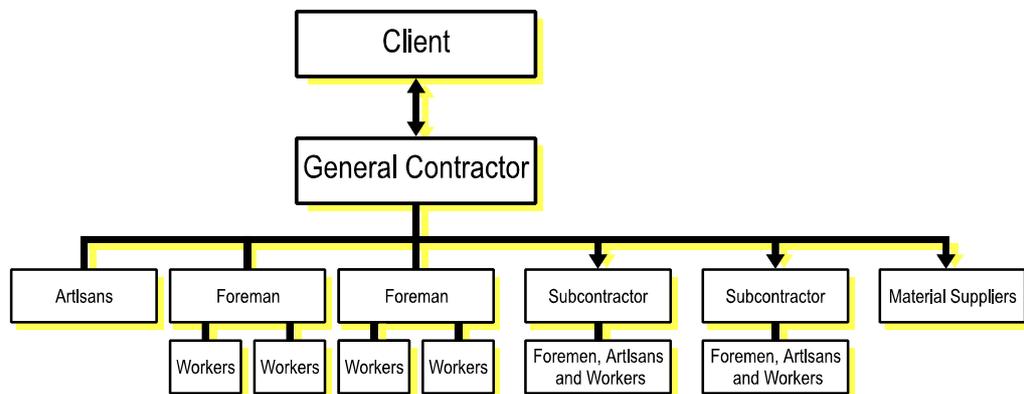
Once a decision is made to carry out a certain construction or civil engineering project, the project management will need to decide which contracting method will be applied in terms of entering into an agreement with suitable contractors.

Depending on the size and complexity of a project, the client may need the specialised services of a number of construction firms to carry out the works. The employment of these firms can be organised in several ways with varying degrees of control and supervision required from the client.

General Contractor

When engaging a general contractor, the idea is to enter into an agreement with one main contractor which will be responsible for all works and material supplies. The general contractor will also be in charge of all specialised services obtained from a number of sub-contractors, thereby limiting the daily interaction from the client to one main contractor. This is the most common arrangement, since it best coincides with the aim of leaving as much of the implementation responsibilities as possible with the contractor.

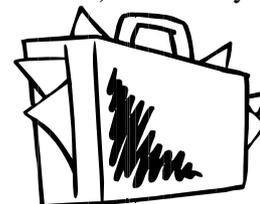
For public works, the government will prescribe stringent procedures in terms of how to recruit this contractor. There will be standard contract documents which regulates the relationship between the contractor and the client during the construction period. The below figure shows a typical organisation for a general contract agreement.



When engaging a general contractor, it is expected that this firm will carry out a substantial part of the works using its own in-house resources, (i.e. workers and equipment). An extreme situation is when the general contractor subcontracts all the work on a project. This is generally not regarded as in the interest of the client, and the client will need to take direct measures to avoid such situations. This arrangement may lead to a situation where the client is charged for a profit mark-up two times, first by the general contractor and secondly by all the sub-contractors. Furthermore, since the general contractor is not carrying out any works himself, there is no real incentives for him/her to complete the works on time. A

contractor's profits is normally regulated by his/her ability to complete works on schedule and receive timely payments. With all the works carried out by subcontractors, this incentive is diminished.

An extreme situation is when the contract is awarded to a general contractor which is not qualified to carry out the works, i.e. he/she does not possess the required skilled staff and/or equipment (also referred to as briefcase contractors). This may occur as a result of shady arrangements staged by government staff and their informal business relations. To avoid this situation, some clients will place contractual limits on the amount of work that can be subcontracted, for example prescribing that 20 percent must be performed by the main contractor's own workers and other resources.



To avoid a situation where a general contractor subcontracts all the works, the client can also (i) define certain criteria for prequalification and (ii) include clauses in the contract agreement which clearly states that all subcontracting needs to be approved by the client. If the criteria for prequalification is clear and the conditions for subcontracting is clearly spelt out before the start of a bidding competition, this situation can easily be avoided.

A general contractor is normally engaged for his/her unique skills in order to obtain a high quality product for the lowest possible construction costs. The required skills include the efficient management of all construction activities, the coordination of all operations and direct supervision of all inputs required (personnel, equipment and materials). An experienced contractor will normally prove such abilities through employing a team of trained and skilled engineers, foremen and artisans. By gaining access to such resources, the client will have a fair chance of obtaining the final outputs, at the envisaged costs and level of quality.

Subcontracts

As mentioned above, a general contractor may choose to engage another firm to carry out certain work activities included in a contract agreement. Sometimes, this work consists of specialised skills which the main contractor does not possess. In other cases, the reason may be that the main contractor is overloaded with work and needs the capacity of other firms to meet his/her contractual obligations. For these services the main contractor will enter into an agreement with a sub-contractor.

Hire of Equipment

Hire of equipment is a very common form of sub-contracting. Many contractors choose to limit their equipment fleet and instead rely to a large extent on other firms for their equipment. The reasons for this may be the limited financial capacity of a firm to acquire equipment. Also, some firms do not wish to establish large mechanical workshops to maintain and service an extensive equipment fleet. Also, possessing a large equipment fleet involves substantial investments which may be risky if the market prospects are somewhat unclear. If there is a surplus capacity among the contractors, it could be wise for the contractor to limit their plant fleets and instead rely on renting equipment when they are awarded the occasional contract.

The most significant feature of a sub-contract is that it is an agreement between the main contractor and the subcontractor. It is important to note that the client or project owner is not a party to this agreement. As far as the client is concerned, the works of the sub-contractor is included in the main contract which is represented by the general contractor. The reason for this arrangement is that the client wishes to identify one sole

party which assumes the overall responsibility for all work progress.

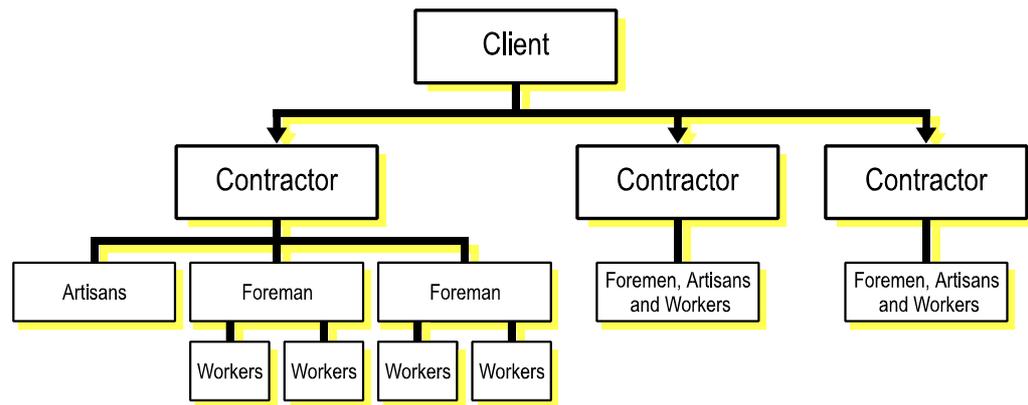
Equally, the payment of works completed by a sub-contractor is normally not provided by the client. When a client appoints a general contractor, the works of the sub-contractors are regarded as part of the works regulated by the general contract and not distinguished from the works of the main contractor. Therefore the client would normally issue payments only to the main contractor covering the works of both the main contractor and the sub-contractors. Payments for the sub-contracted works will then be provided by the main contractor according to the agreement he/she has entered into with the sub-contractor.

In most cases the sub-contractors are selected by the main contractor. Although the works are part of a public works contract, the recruitment of the sub-contractor is not subject to government procurement regulations, but instead regarded as a private affair between to private companies. However, the main contract agreement would normally reserve the right of the client to approve or disapprove of the selection of sub-contractors.

Alternatively, the client may wish to get directly involved in the selection of the sub-contractors. This is referred to as nominated sub-contractors, which may be identified before or after the bid competition for the main contract.

Separate Contracting

The opposite of appointing a general contractor, is for the client to let contracts directly to each of the construction firms, instead of leaving the small firms to be subcontracted by a general contractor. This way, there is no main contractor, and all the firms enter into separate agreements with the client. This arrangement leaves more direct management and coordination responsibilities with the client as shown in the figure below.



This solution requires that the client possess a certain in-house technical and managerial capacity to take on this increased authority. Alternatively, the client can engage a project management consultant which is delegated this management responsibility.

Separate Contracting in Cambodia

In the rural infrastructure programme of the Ministry of Rural Development contracts are awarded for secondary and tertiary road construction works. Local small-scale contractors are carrying out the works using labour-based work methods. However, due to these firm's limited possession of equipment, the client directly engages transport contractors to haul gravel surface materials. By letting these contracts through national competitive bidding instead of allowing the main contractor to subcontract such services, the client can obtain more competitive prices for this essential work activity.

Often, the client would choose a mixed solution with a general contractor as well as entering into direct contract agreements with some speciality contractors. On public works, the client may be very knowledgeable about the functional requirements of the project. For example, the client of a road rehabilitation project will usually be a government road

works agency, employing sufficient qualified civil engineers to adequately manage the works.

When the client decides to award several contracts for executing the works of one project there is a need to carefully coordinate the works of each of the contractors, as well as delineating the responsibilities of each of the contracting firms.

Furthermore, the scheduling of the award of each of the contracts needs to be carefully planned so that every operation is carried out at its optimal timing.

Example:

Separate contracts may be let for delivery of gravel, earthworks and construction of culverts and bridges. In this respect, it is important that this planning starts already before the preparation of each individual contract. The ideal situation would be to issue the culvert and bridge contracts first, thereby ensuring proper access when the road works activities commence. Finally, all earthworks and structures need to be completed before the gravelling works.

Equally, it is important that the division of works between the various contracts are clear. As an example, it must be made clear through the provision of work activities in the bill of quantities, which contractor carries out activities such as traffic and river diversions, back-filling of bridge abutments, etc.

Other Configurations**Design-Construct Method**

In the design-construct method, the client will award a single contract for both the design and the construction of a project. This is also known as a turnkey project. This approach is usually only applied to large scale works and is often more relevant to large projects where the alternative designs will have a large impact on the final cost of the project. For rural infrastructure works where standard designs are often available and contract amounts are more limited, this method is not relevant.

Community Contracting

Community contracting has become a popular approach to contracting of minor works which is normally confined to a limited group of beneficiaries such as a rural village or a town neighbourhood. It is often an approach championed by bilateral donors, in order to secure a high level of local participation by the end users in all stages of the project from conception, planning to implementation of works.

A common feature in community contracting is that there is often no formal contracting firms involved in the works. Contractors are instead identified as local builders and private individuals which possess a trade skill. In some instances these groups are later recognised as a "contractor" and also utilised during the maintenance and operation phase of a project.

Similarly, the client is often an informal group of people which have a common interest, often identified as the end users. These groups will normally, have no prior experience in the world of contracting and will need considerable external technical and managerial support in order to implement the project works.

Petty Contracts

The traditional concept of contracting presumes that the client will engage companies already established as construction firms, which are registered as formal business entities and classified to carry out a certain volume and type of works. Petty contracting allows contracts to be let to small informal contractors, which are not registered and which normally would not be recognised as commercial firms.

Engaging petty contractors have proven to be an effective approach to small works which are dispersed over a large geographical area. Due to the limited size of the contracts, they are often let through direct selection (without competition), applying standardised unit rates and simplified contract documents and procedures.

Performance Contracts

Performance contracts have in recent years become an increasingly popular approach to routine road maintenance both in industrialised and developing countries. The basic principle is to define a desired condition of the road structure which the contractor will need to maintain during a certain period of time, instead of specifying the works activities based on a bill of quantities. The duration of the contracts span from several months, i.e. throughout a rainy season, to several years.

The contracts are often awarded to established road contractors which in the next turn sublet the works to petty contractors, living adjacent to the road. Alternatively, the road authorities may choose to let performance contracts directly to petty contractors.

Lengthman system

The lengthman system was originally designed to cater for road maintenance works in England in the 17th century. The basic concept is to contract individuals living in the proximity of a road to provide routine maintenance. Although the road is a public property, the lengthman or lengthwoman is not regarded as a government worker but a "mini-contractor" selling his/her services by carrying out a set out measured activities for an agreed contract amount. As for petty contractors, the works is normally limited to such a small amount that competitive bidding is wavered. A lengthperson would be awarded new contracts as long as his/her services are satisfactory performed. Only if the performance is inadequate would the client disengage his/her services and select a new lengthperson.

Similar to when utilising petty contractors for road maintenance, lengthman contracts are normally based on standard task rates and a fixed wage rate for the calculation of the contract amounts.

An important feature of the lengthman system is that it normally involves several hundreds of contracts being under execution at a given time. Although these contracts have been simplified to contain the basic essentials and concentrate on the works activities, they still need to be administered. Their large numbers will prescribe certain performance requirements from the agency in charge of the supervision.

Force Account

Force account or direct administration has been the most common approach to implementation of public works throughout the history of civil engineering. Force account basically means that the works are carried out directly by the client, by employing all the personnel and purchasing the required equipment and materials. In short, the client is carrying out the works which could have been performed by a private contractor. When this arrangement is chosen, there is no need to prepare any contract documents.

In recent years, there has been a push to reduce the amount of civil works carried out by force account and instead allow a greater share of the works to be carried out by private construction firms. The reason behind advocating more private sector involvement in the construction sector has been that by allowing private firms to compete for the works, lower prices for the works can be achieved.

It is common that public works agencies will use both force account and private contractors when implementing works projects. Sometimes, both methods are applied in a single project. Many road agencies have entirely privatised certain work operations, such as material haulage and asphalt works in order to reduce their equipment fleet. In such cases, the public agency may choose to carry out certain works by force account and subcontract private firms for specific activities.



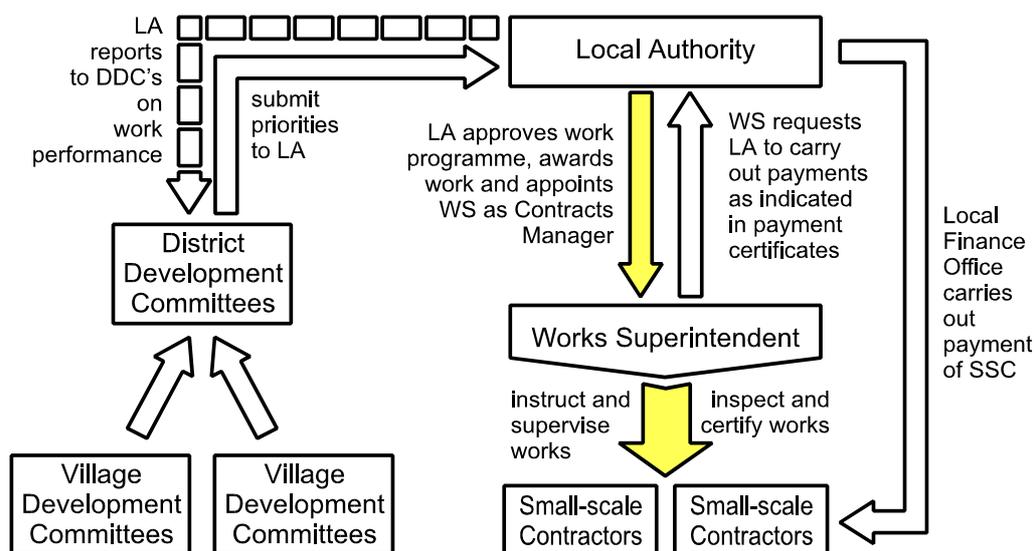
1.3 Decentralised Procedures

Rural infrastructure works are most effectively carried out through civil works contracts awarded to local contractors managed and supervised by local authorities.

The decentralisation of responsibilities and authority, which is also essential for local decision-making, is a key factor for the successful implementation of geographically dispersed programmes. It is particularly important in relation to small-scale works, for which the management resources of central government departments are seldom sufficient to provide proper supervision. Genuine decentralisation enables local organisations to "exert pressure" and therefore to defend their projects better because, at that level, the negotiating partners and the needs of the population are better known. This enables beneficiaries to have a greater influence on the technical choices, methods of implementation, operation and maintenance aspects of the project. In addition, the users will then know who in the community is responsible and who they must turn to in case of difficulties.

Prior to the implementation stage, the planning and prioritisation of the works should be carried out through the various levels of development committees and finalised at district or provincial level with the assistance of an appropriate technical line agency (i.e. District Works Office, Provincial Road Maintenance Authority, etc.).

The contracts should be prepared by the local authorities, including announcement of bids, bid opening, bid evaluation, award of contract, inspection and supervision of works, certification and payment of works and finally issue of final completion certificates as shown in the figure below:



The local political assemblies are responsible for the approval of the budget of a works programme normally consisting of a number of individual projects. The programme budget is based on the estimates prepared by the technical staff for each

of the sub-projects.

Once bidding documents have been prepared for a specific project, the works are announced by the local authority. Works should be awarded on the basis of bids submitted from qualified local contracting firms.

If works are to be carried out using labour-based methods, the main criteria for qualification would be that the contractors possess adequate numbers of staff which have been trained in labour-based works technology.

Once bids are received, they should be examined for their accuracy and adherence to the bidding instructions by technical staff, before they are evaluated by the local project tender committee. The tender committee would consist of representatives from the local assembly, the appropriate development committees, the technical staff and possibly someone from the budget and finance section.

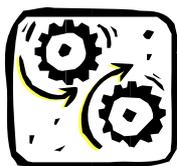
Contract agreements can be prepared by a Works Superintendent or a private consultant. Based on the decision of the tender committee, the contract agreement is signed by an authorised representative of the local authority (the client) and the Contractor.

Funds Transfer to the Districts

Funds transferred from central headquarters to the local authorities should be done on an advance basis on the submission of a detailed workplan, budget and expenditure forecast. The advanced funds should be replenished on the basis of details of actual expenditure and new expenditure forecasts. It is good financial practice to replenish funds when there is still sufficient funds available at local level to carry the planned expenditure of at least one month.

Often, the authorities have already established a District Development Fund which can be utilised for the implementation of works financed by both regular government sources and the donors. Also, there are appropriate procedures established by some donors, relying on special project accounts dedicated uniquely for a single project. Since adequate cash-flow is vital to the timely payment of works, it is strongly recommended that the project establish separate project accounts for capital investment projects. In order to further ease accounting, each works project should have a separate bank account. For maintenance works, a recurrent expenditure account could be established to cover works for a group of projects or a certain region.

The detailed procedures adopted in terms of cash flow from central level to the local authorities and further on through the payments to the contractors, need to be closely monitored for its efficiency. The timely payment of the contractors will be crucial to their success and ability to operate. A vital performance criteria of the payment procedures is that the contractors are paid within a maximum of one to two weeks after they have submitted an invoice. Further delay will compromise the contractor's ability to operate and turn a profit. It also restricts the contractor from paying the work force on time, which in the next turn will have a detrimental effect on the job motivation and finally lead to reduced production rates.



Chapter 2

Bidding Procedures

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2.1 General

There are several methods for inviting contractors to submit bids for civil works. In most cases when dealing with public works contracts, i.e. when the Government is the client, there are established procedures which need to be adhered to in terms of who can participate in the bidding contest and where the bids are announced.

As part of any government agency's attempt to carry out all procurement in a transparent way and obtaining the best offers from the private construction industry, it is common practice to carry out bidding competitions applying a set of house rules with the objective of allowing a fair and equal chance for all qualified firms to compete for the works.

Depending on the contract value and the amount and type of work to be carried out, the Client may wish to use different rules for the bidding contest. For smaller works, it would be preferred to recruit local contracting firms located in the vicinity of where the works will be carried out. The main reason for this is to save money on mobilising costs. If the works are of limited value and do not require any substantial amount of equipment and specialised skills, the simplest solution is to recruit a local building company to carry out the works. If the works are really simple and very limited, it may be sufficient to engage a local artisan to carry out the works.

Projects with external financing from international development banks and donor agencies require that the bidding procedures conform to specific regulations developed by these organisations. However, also when utilising external funding, it is possible to utilise local contracting procedures, if the funding agency is convinced that the rules applied comply to basic contracting principles in regards to fairness and transparency.

2.2 International Competitive Bidding

International bidding is mainly used on large contracts or where highly specialised skills or equipment is required which may not be commonly available in the country.

In some cases, these procedures are also applied when the Client feels that the few companies in the country qualified to carry out the work, may agree on their bidding prices and thereby provide artificially high bids (collusion). By inviting foreign companies to participate in the bids, the client can be safeguarded against such foul play.

2.3 National Competitive Bidding

When contract values are larger and for this reason, contracting firms from other parts of the country may want to participate in the works, it is common practice to allow the entire industry to participate by arranging national competitive bidding. Also, when the works require certain skills or equipment which cannot be found among the local contractors in the vicinity of where the project is located, it is normal to invite firms from all over the country to participate in the bidding contest. These contracts would normally be larger in value and volume of works, and for this reason, will justify a certain additional cost in terms of mobilising equipment from one part of the country to another.

2.4 Domestic Canvassing

For works contracts with a limited value, most government procedures will allow for a limited competition through domestic canvassing. This basically implies that a minimum of three quotes are obtained from three separate qualified companies.

The advantage of using domestic contracting is that the exercise of advertising is eliminated. Also, the issue of prequalification is controlled through the fact that the client directly selects a short list of firms which are allowed to bid for the works.

Combining domestic canvassing with decentralising the contract management to local level may encourage the participation of local contracting firms based in the vicinity of where the works will take place.



Domestic canvassing should still be used with caution as it may produce complaints from contracting firms which are not invited to bid. These claims may be justified if the client always limits the invitations to a selected group of firms. Complaints of this nature is normally be avoided in situations where a large number of small contracts are awarded, and where all qualified firms are given the opportunity to submit bids.

Also when applying domestic canvassing, it is important to demonstrate the same level of transparency and fairness when bids are opened and evaluated.

2.5 Negotiated Contracts

When it is difficult to specify the scope of work, it may be necessary to negotiate a contract without competitive bidding. Since this may imply a higher price, and does not guarantee the same objectivity and transparency, it is not a preferred method for appointing contractors. In certain cases, however, it may have certain advantages. For example, when a similar project has been completed and the works require specialised services which few contractors possess.

Also, when the contract values are relatively small, the price reduction obtained from a competition may be insignificant in relation to the resources required to carry out the bidding competition. Normally, government procedures would allow for purchases up to a certain amount without any competition.

2.6 Preference to Local Contractors

In most cases, the established procurement procedures will prescribe the appropriate bidding procedure depending on the value of the contract. The Ministry of Finance would set certain thresholds for when each of these methods are to be applied as part of the government procurement regulations. This implies that any contract financed by any government agency or department will need to follow the same rules and regulations. Local contracting procedures will be accepted for small contracts up to a certain estimated contract value. If this amount is exceeded, then the regulations for national competitive bidding must be utilised.

However, it is the responsibility of the project manager to determine the most appropriate method of announcing and collecting bids for a certain project. If the engineer finds it appropriate to invite contractors from far away to participate in the bidding exercise, then national competitive bidding can be applied even when the contract values are limited.

The use of local contractors is normally the most preferred option in terms of choice of contractors. Local contractors are better known to the client, and it is therefore easier to assess their qualifications and skills in relation to the next project. The quality of their previous works is easy to assess because it was carried out in the nearby areas and can therefore easily be inspected. Local contractors are also well known in the local neighbourhood and will know best how to operate there. They are also subject to local pressure to perform their best, thereby retaining their good reputation and continuing to do business locally. Finally, when they are provided a steady amount of works, they will have a positive effect on local trade and employment and contribute positively to the local business community.

For the client, it is always easier to engage a firm which is well known, and which has a proven track record and capacity with the government agencies. It is therefore more attractive for local authorities to utilise its local construction industry. In order to allow these firms a fair share of the works programme, it is therefore important to package work in a manner which allows them to participate. By breaking down larger volumes of works into smaller contracts, the local authorities

can ensure that local bidding procedures are allowed for. Smaller and more numerous contracts may imply more supervision for the client, however, it is also a good measure of spreading the risk and can also be an effective way of starting up more works activities in parallel with each other. These are important considerations which needs to be made during the planning stage of the envisaged works programme.

2.7 Externally Financed Projects

When works are financed by external organisations such as donors from foreign governments or by international lending agencies, these organisations often prescribe their own procurement regulations. Some organisations would wish to favour contractors from their own country, or they may insist on international competitive bidding for all the construction works.



In such cases, it is important that the government's concern for their domestic construction industry is addressed at an early stage, already during the project negotiations between the government and the external funding agency. Very often, the decision to use foreign contractors are based on the assumptions that the local industry does not have the capacity or the skills to carry out the envisaged works. In many cases, these assumptions are made on wrong or lacking information. Also, with a initial in-country training programme, it has been proven on numerous occasions that the local construction industry can provide a substantial part of the services required.

World Bank

The operational directives of the World Bank defines the various modes of procurement on projects fully or co-financed by the Bank. These are International Competitive Bidding (ICB), Limited International Bidding (LIB), Local Competitive Bidding (LCB), International and Local Shopping and Direct Contracting. The modes of procurement most relevant to the promotion of domestic small-scale contractors would be LCB and Local Shopping.

The conditions for applying Local Competitive bidding are described in the

Operational Directives of the World Bank Operational Manual, as well as in their procurement guidelines. It is interesting to note that these guidelines state that if the works are labour-intensive, then the works could be carried out applying LCB. It is also worth noting that the other pre-requirements allowing for local contracting,

National Competitive Bidding

3.3 ... National Competitive Bidding (NCB) is the competitive bidding procedure normally used for public procurement in the country of the Borrower, and may be the most efficient and economical way of procuring goods or works which, by their nature or scope, are unlikely to attract foreign competition. To be acceptable for use in Bank-financed procurement, these procedures shall be reviewed and modified as necessary to assure economy, efficiency, transparency and broad consistency with the provisions included in Section I of these Guidelines. NCB may be the preferred method of procurement where foreign bidders are not expected to be interested because (i) the contract values are small, (ii) works are scattered geographically or spread over time, (iii) works are labour intensive, or (iv) the goods or works are available locally at prices below the international market. NCB procedures may also be used where the advantages of ICB are clearly outweighed by the administrative or financial burden involved.

Source: Guidelines: Procurement under IBRD Loans and IDA Credits, January 1999

such as small contract values, geographically scattered works, spread out over time, works available at a cheaper price locally, are typical features of small rural infrastructure works where the domestic construction industry can play an important role.

With this specific clause in mind, it would be logical to ask why not more works are carried out using local resources. The answer to this shortcoming lies in the current practice of packaging the works. As stated in the same procurement guidelines, *the particular procurement methods and the categories of goods and works to which they apply are determined by agreement between the Bank and the Borrower, and are specified in the Loan Agreement*. In other words, if these considerations are not made during project appraisal, it may be possible that the procurement of works is designed in a manner which favours International Competitive Bidding, with the result that the local construction industry loses out to the competition with the large firms from overseas.

Asian Development Bank

Equally, the ADB also allows for local competitive bidding under certain conditions, as shown in this extract from their procurement guidelines:

Local Competitive Bidding

3.04. Local competitive bidding may be allowed in cases where the Bank is satisfied that all of the following are met:

- domestic production or construction facilities are available at reasonable cost, are efficient, and adequate in terms of prompt delivery;
- it is considered unlikely that foreign contractors and suppliers would be interested in bidding;
- the procedures to be followed are satisfactory to the Bank;
- the borrower has specifically requested the adoption of local competitive bidding; and
- local competitive bidding shall not preclude participation by foreign bidders.

Source: Guidelines For Procurement Under Asian Development Bank Loans, February 1999

Once again, it is important to note that also according to the ADB guidelines, the choice of bidding procedures is made during the loan appraisal stage, i.e. before a loan agreement has been secured.



Chapter 3

Announcement of Works

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Once all planning and design activities have been completed and the project has obtained the required go-ahead and funding approvals, the bidding process can commence.

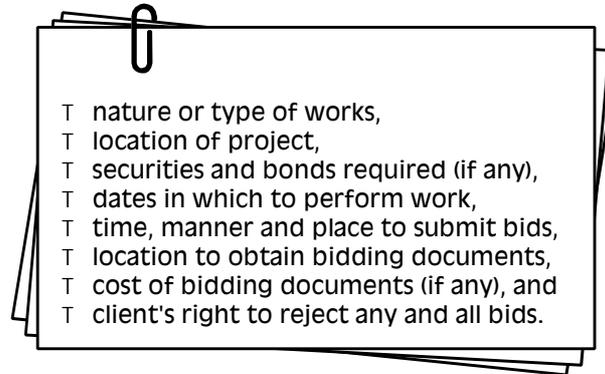
Often, the bidding process is carried out by a separate organisation such as a central or regional tender board. Although it may be independent from the executing agency, the client and the project management team may be represented as part of the board members. The project manager may be required to provide basic documentation to the tender board and provide advice on technical issues. In some countries, the entire bidding process is carried out by the tender board, while in other places the tender board would be created from staff members within the executing agency (i.e. senior management staff and project manager).

3.1 Public Works Contracts

When involving public funds to finance the works, this process needs to be carried out according to established government regulations and procedures. In addition, when projects are funded by international lending agencies or donor organisations, these institutions may impose a set of rules on how to proceed in obtaining a suitable contractor.

Advance notice must be given to interested and qualified construction firms before the bidding competition can commence. A Notice for Invitation should be prepared and announced only after all other bid documents have been prepared, since the bidders will require these documents as a basis for their tendering exercise.

The Invitation for Bids should contain key information relating to works for which the client wishes to engage a construction firm. Further detailed information is obtained at the address mentioned in the announcement and/or by acquiring the complete set of bidding documents. The following information should be included in the bid announcement:



This information is also mentioned in other parts of the contracts documents, and therefore needs to be carefully cross-checked with the other related clauses (i.e. Instructions to Bidders).

Rural Infrastructure Works in Cambodia

An ADB financed rural infrastructure works project decided that for works estimated at a cost of more than US\$ 50,000:-, the procedures for national competitive bidding would be applied. The established practice would then be to advertise the works in a national newspaper two weeks in advance of the bid closure date.

For works with a lower value than US\$ 50,000:-, the project applied domestic canvassing, consisting of inviting a minimum of three bids for each project.

Although the methods used for announcing the works were different, the procedure for bid opening and evaluation remained the same.

The bid announcement is normally prepared by the same person which prepares the other bidding documents, however, it would be normal practice for it to be signed by some senior management staff, thereby signalling the final go-ahead of the procurement process.

Depending on the government regulations, size and type of contract, there will normally be

strict regulations prescribing the frequency with which advertisements must appear in newspapers and the length of time notices must be posted.

If the contracts amounts are relatively large, the work needs to be procured using national or international competitive bidding. ICB would require the longest announcement period in order to reach all potential bidders and still allow them reasonable time to prepare their bids. When dealing with local competitive bidding this can be reduced to say three to four weeks with a couple of advertisements posted in the national or local press. In the case of small contracts, appropriate procedures for local shopping can be applied, thus necessitating only a couple of weeks notice.

It is important to bear in mind that the announcement period is also the period during which the bidders are required to prepare and submit their bids. Therefore, when determining the duration of the notice period it is important to allow the bidders sufficient time to inspect the work sites and prepare their offers.

World Bank Regulations

Advance notice must be given to interested and qualified construction firms.

Notes on the Invitation for Bids

The Invitation for Bids (see Procurement Guidelines, para. 2.9) is normally issued as

(a) an advertisement in at least one newspaper of national circulation in the Employer's country and in the official gazette, if any; and

(b) a letter addressed to contractors who, following the publication of the General Procurement Notice, had expressed interest in bidding for the Works. Borrowers are also strongly encouraged to transmit a copy of the advertisement to consular or diplomatic representatives of eligible countries with potential bidders.

Its purpose is to supply information to enable potential bidders to decide on their participation. Apart from the essential items listed in the sample documents, the Invitation for Bids should also indicate any important or unusual bid evaluation criteria (for example, the application of a margin of preference in bid evaluation).

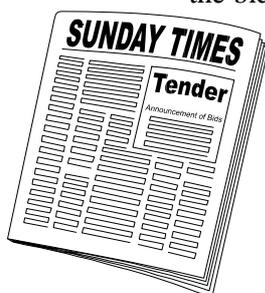
If pre-qualification is used, the above notifications advertise a Request for Pre-qualification. After the pre-qualification process, only the prequalified applicants receive the Invitation for Bids.

The Invitation for Bids may be incorporated in the bidding documents merely for the record, or it may be omitted. In either event, the information contained in the Invitation for Bids should conform to the bidding documents, and in particular, to the relevant information in the Bidding Data and Contract Data.

Often, estimating and tender preparation is done while contractors are busy with work on other ongoing works contracts. If too little time is available to prepare the bid, the contractor may make costly errors.

Contractors are fully aware of this fact and for this reason may include a larger mark-up when the bidding time is short. This is an important issue to take into account when determining the bidding period. Despite the client's wish to start works as soon as possible, it is also important to allow the bidders sufficient time to prepare realistic bids, which in the next turn may result in lower prices to the client, since there will be less uncertainties in the contractor's bids.

Finally, it is also important to remember that during the bidding period, the contractors also need to carry out their site inspections and verify whether the information in the bidding documents are correct and concise. If there are questions related to the contents of the bidding documents, these needs to be clarified before the bid closure date.



In addition to newspapers and direct invitations, the works announcements should also be posted at a public notice board at the office of the government agency which will represent the client. Such practice allows potential bidders to obtain a general overview of all the work to be awarded to contractors at any given time.

A secondary effect of announcing works is that it makes the programme more visible to outsiders and may spur the interest of other firms and organisations to participate in a particular rural infrastructure rehabilitation and maintenance programme.



3.2 Private Contracts

When awarding contract in the private sector, there is no well-defined rules and procedures as compared to when using government funds. This also applies to the appointment of sub-contractors on public works contracts, unless the client chooses to nominate the sub-contractors.

The bidding process can then be summarised as follows:

- the client is free to select the contractor by any means,
- advertising is often used to obtain the advantages of open and free competition,
- the client may choose to negotiate a contract with a single contractor, or
- the client may decide to invite a limited number of contractors to bid for a job. This process has the advantage of the competitive market while restricting the bids to a selected group of qualified contractors.

3.3 Purchasing Bid Documents

If a contractor decides to submit a bid on a project, he/she may be required to pay a certain fee to obtain a copy of the bidding documents. The purpose of this amount is basically for the client to cover its expenses in duplicating the bid documents in sufficient numbers. Normally, this fee is not refundable, in any case whether a bidder is successful or not in winning the contract.

It is worth noting that these proceeds, when received by the client, should be considered as public funds and therefore needs to be carefully accounted for in the same manner as all other public funds.

If the client is demanding a fee for the tender documents it would normally be stated in the bid announcement. When a contractor purchases the bid documents, he/she shall make sure that a receipt is issued at the amount stated in the Invitation to Bids.

For smaller contracts, this procedure is often wavered, since the work related to accounting for such funds creates additional administrative work. It should also be remembered that the cost of stationary related to a small contract is rather limited since they would consist of relatively less documentation.

3.4 Engineer's Estimate

Before the tenders are announced, the project management needs to prepare its own estimates of the costs of the works. During the various stages of the identification and planning process, estimates are prepared with various degree of detail. During project identification, decision makers will need some rough cost estimates which are used as a basis for considering various alternative technical solutions. At a later stage during the final planning stage, more detailed estimates are prepared to ensure that sufficient budgets are secured before a contract is awarded. The final cost estimates prepared for the project management is often

referred to as the Engineer's Estimate.

Some programmes try to keep these cost estimates confidential until the bidding process has been completed, while others would post this information as part of the information provided to bidders. It is recommended that the engineer's estimate is published. Certain project owners may be reluctant to do so because they are afraid that this encourages contractors to raise their prices. This may be a valid point, however, one is never sure that the secret will be kept from all the bidders, and the best incentive to competition is for everyone to have an equal chance.

3.5 Prequalification

Ensuring that competitive bids are obtained from qualified bidders is a fundamental measure in attempting to assure that civil works are carried out in time and to high quality standards once a contract has been awarded. Prequalification can either be done by prescribing various classes and type of competence from the contractor or by carrying out a specific prequalification process for a specific works project.

Prequalification related to a specific project would normally consist of submitting specific information regarding similar works successfully completed by the firm in the past, the skills, education and experience of the personnel employed and the financial capacity of the firm. The result of a prequalification process is then a short list of selected bidders representing firms which have demonstrated that they will be able to carry out the works.

Since the prequalification process does not relate to any bid prices, it may be an appropriate way of eliminating unqualified contractors, thereby avoiding a situation where such firms possibly submit a lowest bid. However, the elimination of contractors needs to be transparent and based on clear criteria, and should not be so restrictive as to eliminating the competition element.

A common practice is to register all contractors in certain classes according to their financial capacity and specific skills. Often this is taken care of by a government agency which award many contracts for a wide variety of works such as the Ministry of Works. In other countries the classification is carried out by an independent body such as a national construction council.

This type of classification is often related to the contents of work as well as the size of the contracts. In order to obtain a certain classification, the contractor will need to demonstrate a certain financial solidity, possession of certain types of equipment and employ skilled personnel. For example, before a contractor can qualify for asphalt works, he/she would need to prove that he possess the right equipment to carry out asphalt surfacing.

Prequalification for Labour-based Works

For rural road works, where labour-based work methods are used, it is important that bids are obtained from firms that are qualified to carry out the works applying

Prequalification in the Philippines

The Philippine Contractor's Accreditation Board has a sophisticated system of categorisation which takes into account:

- B financial capacity, based on paid-up capital,
- B equipment capacity, based on net book value of equipment and plant,
- B technical personnel, based on qualifications and experience,
- B number of years the company has been in operation,
- B average annual volume of work over the preceding three years.

Point are awarded for each of the above, resulting in minimum qualifying points as shown in the table below:

Category	AAA	AA	A	B	C	D
General Engineering	1150	515	185	82.5	39.5	11.5
General Building	1110	495	181	80.5	38.4	11.5
Speciality	710	240	131	75.5	33.3	6.1

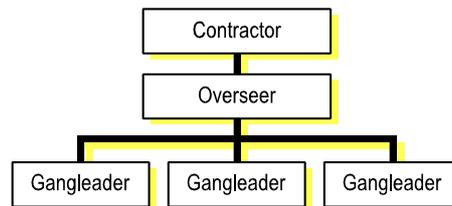
the works methods prescribed in the contract documents.

The main concern of the client is that the company possess qualified staff which is fully conversant with the use of labour-based appropriate technology. This implies that the bidders need to provide the client with evidence showing that their staff have (i) received adequate training in labour-based road works technology and (ii) eventually can show past experience in carrying out this type of works.

Depending on the magnitude of the works, the bidder will need to provide details of the site

supervisory staff from overseers, semi-skilled workers and artisans. Furthermore, if this staff chooses to leave the company during the execution of a labour-based road works contract, the contractor will be obliged to recruit new professionals with similar work experience and training.

Experience show that in order to ensure a monthly average output of 1.5 km of earth road rehabilitation using labour-based appropriate technology, the core staff required from a contractor is shown below:



3.6 Addenda

Despite the fact that the bidding documents have been well prepared and due consideration has been taken to all aspects of the works envisaged, there is always a chance that changes needs are required after the works have been announced. Upon additional review of the plans, either by the bidders or by the designers, it may be decided that changes need to be carried in the drawings or the specifications. In other cases, there is no need to make any changes, but rather clarify some issues which may seem unclear to the contractors.

These changes or clarifications need to be communicated to all the bidders, and should be done in a formal manner through the issuance of an addendum. It is important that all the bidders receive this information, thereby allowing all the bidders an equal and fair chance to modify their estimates. Addenda need to be issued in writing and should be sent to all the bidders which has received the bidding documents. For this reason, it is important to obtain the contact details of all the

firms which obtain the bidding documents, thereby leaving no doubt where to send any eventual addenda.

Addenda are issued during the bidding period. If they occur after the award of a contract, they are regarded as a change order, and it is only the successful contractor which won the bid competition which needs to be informed. It is decent practice to avoid sending out addenda immediately before the bid closure date, since some of the bidders may have already completed their bids and even submitted them to the client. Also, if such notices are sent out in the last minute, they may not be received before after the bid closure date.

In the event of any substantial amendments to the bidding documents, adequate time should be allowed for the bidders to make any necessary changes in their bids in response to such amendments - in other words, delaying the bid closure date.

It is important to note that addenda form part of the bidding documents. After a contract has been awarded, these instructions will be regarded as part of the contract.

3.7 Bid Closure

It is common practice to arrange for the bid opening immediately after bid closure. This provides more accountability in the bid submission and closure procedures. If it is not possible to conduct the bid opening at the date for bid closure, it is recommended that the bid closure date is changed to a suitable time when bid opening can take place.

When fixing the bid closure date and time, it is therefore important to ensure well in advance that the members of the bid opening committee will be present and that the location indicated in the bid announcement is available.





Chapter 4

Submission of Bids

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4.1 Instructions to Bidders

The Instructions to Bidders forms part of the tender documents and provides the basic rules and regulations for the bidding process. It describes in detail all the procedures for submitting a tender as well as defining the terms on which the bids will be evaluated.

The Instructions for Bidders is a document which is relevant only during the bidding stage. Normally, it will not form part of the contract agreement. Although the Instructions describe some of the conditions set for carrying out a contract, these are normally included for bid preparation and estimating purposes. When a contract is awarded, this type of information is normally repeated in the General Conditions of Contract.

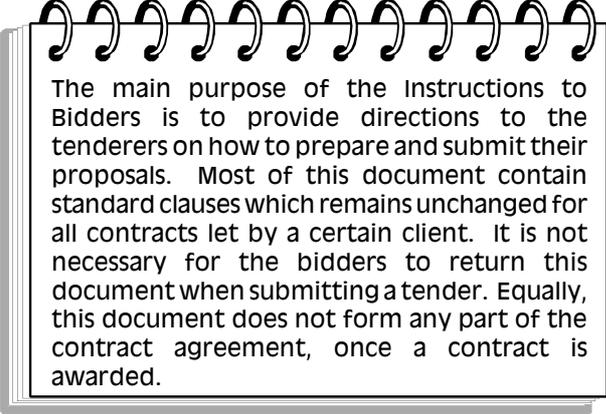
The Instructions to Bidders will normally include the following directions and information:

- (i) typical instructions in regards to the preparation and submission of the bids, such as:
 - B the bids should be submitted using standard forms,
 - B all items in the bid schedule must be priced,
 - B each bidder may only submit one bid,
 - B alternative bids are not considered unless requested for,
 - B procedures for modifications,
 - B how to seal and mark the bids,
 - B where and when to submit the bids.
- (ii) additional documentation required to prove the experience and capability of the contractor, i.e. trade licences, classification, previous work, etc.,
- (iii) a list of all the documents which form part of the bidding documents, i.e. drawings, specifications, conditions of contract, sample agreements, bid form, etc.,
- (iv) the duration of the construction period, normally determined by the client, including a start date and a finish date,

- (v) the duration of the bid validity period, including procedures relating to how the validity period can be extended,
- (vi) site inspection and prebid conferences,
- (vii) requirements for bid securities (if any) as well as any other securities,
- (viii) procedures for dealing with bid irregularities,
- (ix) criteria for which bids will be evaluated,
- (x) appropriate clauses relating to collusion and other corrupt practices.

As can be seen from the above, these instructions can be quite comprehensive and involve several pages of clauses in "legal language". In order to avoid too many confusions, the client will normally standardise the contents of the Instructions to

Bidders so that a contractor who has carried out prior work for this particular client, would normally understand the contents of these instructions.



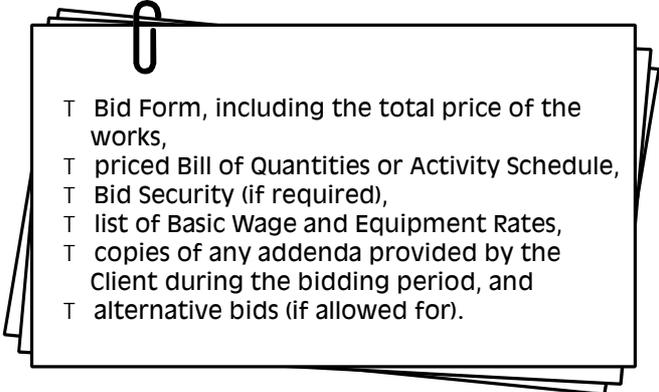
The main purpose of the Instructions to Bidders is to provide directions to the tenderers on how to prepare and submit their proposals. Most of this document contain standard clauses which remains unchanged for all contracts let by a certain client. It is not necessary for the bidders to return this document when submitting a tender. Equally, this document does not form any part of the contract agreement, once a contract is awarded.

In such a situation, the most important clauses would be the instructions which are directly linked to a specific contract. Normally, this information would be related to the bid closure date, duration of the contract, venue of the bid opening ceremony and the bid validity period.

By establishing a set of standardised bidding procedures, documented through the Instructions to Bidders, enables the Client to develop a code of practice both among his/her own staff as well among the contractors in terms of how the bidding competition should proceed. By adhering to an established practice, the bidders will feel more secure in their treatment, it will provide a feeling of fairness and finally create a good reputation of cleanliness and transparency.

4.2 Submitting the Bid

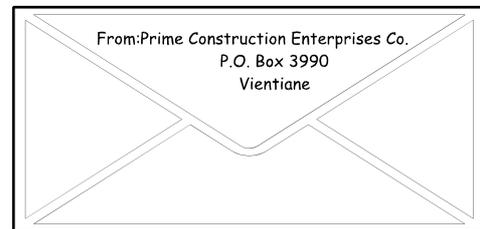
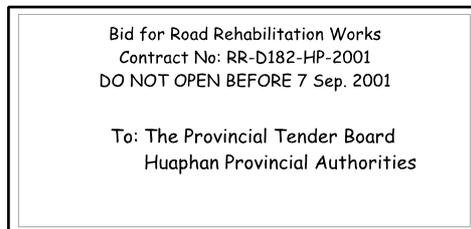
Bids need to be submitted in the form as prescribed in the Instructions to Bidders. To ensure this, the client will include a sample bid form as part of the bidding documents. The bid proposal needs to be signed by the firm's authorised representative and would normally contain the following documents:

- 
- T Bid Form, including the total price of the works,
 - T priced Bill of Quantities or Activity Schedule,
 - T Bid Security (if required),
 - T list of Basic Wage and Equipment Rates,
 - T copies of any addenda provided by the Client during the bidding period, and
 - T alternative bids (if allowed for).

If any last minute amendments are made to these documents, these should be duly initialled by the authorised representative of the contractor. Bids are required to be delivered in a sealed envelope before the deadline specified in the bid announcement.

The contractor needs to make sure that the bid is sent off to the correct address as stated in the bidding instructions. It is worth noting that this address may not necessarily be the office address of the client. Instead, it could be the address of a tender committee located elsewhere.

Sealed bids would normally be marked with information such as the name of the contract, the address of the client and the return address of the bidder. To avoid that the bid is opened by mistake before the bid closure date, it is useful to clearly mark it with a message stating "Do not open before [*the bid closure date*]".



Bids which are delivered in advance of the deadline shall be stored unopened in a secure place until the bid opening ceremony takes place. The client is obliged to provide the bidder with a signed receipt, acknowledging the receipt of a bid which is submitted before the date and time of the bid opening.



Remember:

No bids shall be accepted after the announced deadline for submission. Any bids received after the final deadline should be disqualified and returned unopened to the address of the tenderer as marked on the envelope.

All tenderers are obliged to use the standard Form of Tender when submitting a bid. In this standardised tender form, there are normally two important messages:

- (i) First of all, the tenderer, by signing the standard bid form, accepts all the conditions of the contract. If the contractor makes reservations to any of the conditions or technical specifications in his/her tender, he/she may be disqualified. If there are obvious errors in the bidding documents, these should be clarified before the deadline for submission of bids.
- (ii) Secondly, the price offered for the work is expected to include all the work activities mentioned in the contract, including provisions for mobilisation, supervision, administration, profits, etc. In short, this amount will be the maximum amount paid for the quantities of work mentioned in the contract. The contractor will not be able to claim additional payments during the course of the works for the quantities already specified in the contract.

Disqualifying Bids

The Instructions to Bidders provide clear directions as to how the bidding competition should be conducted. If bidders do not adhere to these rules, they run the risk of being disqualified.

It is important to note that when disqualifying a bidder, his/her bid price is not recorded. If the reason for disqualification is related to how the bid was submitted, the bid may be returned to the contractor unopened.

If the bids are late, not sealed or lack some of the required documents, these are normally sufficient reason to disqualify a bidder. Besides these reasons, there are a number of other common reasons for which a bidder may be disqualified:



- T standard bid form not used,
- T insufficient copies of the bid,
- T several offers provided from one bidder,
- T bidder have made reservations to parts of the works - price offered does not include all work items,
- T bidder did not submit bid security before the bid closure time, or
- T collusion or corrupt practices has been discovered.

The most common reason for the disqualification of a bid is lacking knowledge and experience among the contractors in how to correctly submit a bid. Contractors who already have an established working relationship with the client will seldomly fall into such an unfortunate situation. Disqualification should be regarded as a necessity in order to maintain a certain discipline in the bid competition. However, it is in the interest of the client to receive and be able to evaluate as many bids as possible. To avoid a situation in which several bidders are disqualified, the client may arrange prebid conferences for potential bidders. During such conferences, the rules of the bidding contest can be clearly explained in detail to the contractors in order to secure a high participation of bids during the bid evaluation.

It is important to differentiate between disqualification and rejection of a bid. Disqualifying a bid is done on the grounds that the bidding procedures have been violated, while a bid rejection is normally done on the basis of an evaluation of the price offered or the competence of the contractor. In other words, bids may be rejected although the bidder adhered to all the bid instructions.

4.3 Modification or Withdrawal of Bids

The proper preparation of a bid is a time consuming exercise involving the processing of many price quotations from sub-contractors and material and equipment suppliers, often received shortly before the deadline for bid submission. As mentioned earlier, the bidder is also expected to carry out a field inspection and on this basis make his/her own judgements of the real site conditions and the true costs of the works. Finally, the contractor will need to make a proper assessment of the market situation and attempt to predict a competitive price for the works.

Obviously, there is little room for error in the calculations of a bid. Also, due to the strict time schedule imposed by the client, all the details of pricing need to be ready before the bid submission. In some cases, the bidder will not have access to all detailed prices before a bid is submitted, and he/she will need to estimate the prices expected from sub-contractors and suppliers.

Once the deadline for bid submission has been reached, the bid needs to be in the hand of the client, and from then on the bidder cannot make any changes to his/her estimates. Bids may be submitted hours or even days before the deadline, mainly to ensure that the bid arrives on time according to the bidding instructions.

Once a bid is submitted, it is common practice to allow bidders to withdraw or modify their offers, provided that the request is made prior to the bid opening and carried out in writing. The instructions to bidders will in such cases describe in detail how this should be carried out. Written correspondence from a bidder related to bid modification and withdrawal should be treated in a similar fashion as the original bid, i.e. it needs to be submitted in sealed envelopes before the bid closure date and should only be opened by the client at the time of bid opening.



Some clients will permit contractors to withdraw unopened bids after the deadline if bids are being accepted for several projects at the same time. This will allow a contractor who is the apparent lowest bidder on one project to withdraw any unopened bids submitted for the other projects. When this practice is allowed, it should be clearly stated in the instructions to bidders.

4.4 Alternative Bids

Ideally, among a group of qualified contractors bidding for a job, the contract will be awarded to the lowest bidder. The determination and selection of the lowest bidder are made more complex when the client allows for alternative bids.

The use of alternative bids, provides the client with more advice in making decisions about changes to a planned project with the full knowledge of the cost impact of such variations.

Alternative bids are modifications to the original bid. They may include changes in the structure or design of a project, alternative quality and type of materials, additional items of work, variations or cancellation of work activities, etc. as compared to the original design provided by the client in the bidding documents.

Most clients would demand that the bidders submit their offers based on the design and work specification prescribed by the client or his/her designer without any alterations. However, in some instances the client may allow the bidders to submit an additional bid in which some alterations to the design or work methods are proposed by the bidder. These changes may cause the total price to increase or decrease, depending on the justification for making the changes.

The award of contracts becomes more complex when alternative bids are allowed. For a public works agency, it may be difficult to maintain a certain impression of fairness and equal competition when dealing with alternative bids. The immediate concern would be that the client is then in a position to manipulate the alternatives that are accepted so that a preferred contractor is awarded the contract. Equally, the acceptance of alternatives leads to a situation in which the contractors are submitting several bids with varying volumes of works.

In order to avoid accusations of unfair practice, most government agencies will not allow the bidders to offer any alternative bids. Instead, it is expected that the elaboration of alternative designs and work methods have been adequately addressed during the design stage of the project. If the client is represented by a technical line agency, such as the Ministry of Works, there would be even less demand for alternative bids, since such agencies are capable of providing realistic cost comparisons for different designs, materials and work methods.



Chapter 5

Bid Opening

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5.1 Time and Venue

The time and venue for the bid opening should be the same as for the latest delivery of bids or promptly thereafter. Bids should be opened at the stipulated time in public, i.e. bidders or their representatives should be allowed to be present. In most cases, the bidders are not obliged to be present during the bid opening. Also, there is no requirement as to who is representing a particular bidder. It may be the manager, a technician or a clerk employed by the contractor.

Although the contractors are normally not obliged to be present, most firms will choose to be represented at the bid opening session. The main reason is obviously to obtain first hand information as regards to how competitive their offer is, but also to see the prices of their competitors. In addition, their presence may contribute to a fair and clean bidding procedure. Finally, it gives them the opportunity to correct any minor clerical errors, if this is allowed by the client.

First the number of bids will be announced. Thereafter, the name of the bidder and total amount of each bid, and of any alternative bids if it has been permitted, should be read aloud and recorded when opened.

Bids received after the time stipulated in the bidding documents should not be considered. Late bids should be returned un-opened to the bidders representative. Often, the start of the bid opening ceremony is the last moment at which a bid can be submitted. However, once the first bid has been opened, no additional bids, changes or withdrawal of bids should be accepted.

The time and venue should be properly announced to allow the bidders to meet on time and locate the bid opening venue. Thereafter, it is the responsibility of the bidders representatives to arrive in good time to deliver their bids and participate in the opening session.



5.2 Clarification of Bids

No bidder shall be requested or authorised to alter his bid after the first bid has been opened. A bidder may be asked to clarify a given point for purposes of evaluation, however, he should not be requested to alter the substance or price offered after the bid opening session has commenced.

A common issue during bid opening is whether to accept bids with price offers which differ substantially from the Engineer's Estimate. First of all, the rejection of a bid on the basis of the price should be done during the bid evaluation and not during the bid opening session. However, the bid opening meeting serves as a good

Contractor Training:

In a contractor training programme, the use of the bid opening session, can be a useful time to gauge the level of competence of the firms in tendering for works. By requesting the contractors to break down their unit rates into detailed costs of labour, materials, tools and equipment, the client will quickly discover the effectiveness of past training provided.

opportunity to request bidders to provide additional information as related to how they have arrived at their prices. During such questioning, however, it is important to stress that this is an information gathering exercise and not an evaluation. Any opinions related to whether a certain bidder has submitted appropriate prices or not should be spared until the bid evaluation session. The answers provided are at the discretion of the bidder. and depends on whether he/she is present during the bid opening and whether any of his/her technical staff is present.

5.3 Examination of Bids

Following the opening of the bids, the bid opening committee should ascertain whether the bids have been submitted according to the instructions to bidders. It is common procedure to check that the bids:



- T have been properly signed,
- T are accompanied with the required securities,
- T are substantially responsive to the bidding documents,
- T contain no material errors in computation, and
- T are otherwise generally in good order.

A central question in relation to any irregularities is whether a particular offer still constitutes a regular bid. It is generally accepted that a bid without a bid security (bid bond, cheque or cash) or one with an insufficient bid security should be disqualified. Late bids are never admitted to a bid opening.

If a bid is not substantially responsive, i.e. it contains material deviations from or reservations to the terms, conditions and specifications in the bidding documents, it shall be disqualified and not be considered further. The bidder should not be permitted to correct or withdraw material deviations or reservations once bids have been opened.

As a general rule, failure to comply explicitly with the instruction to bidders will result in disqualification, however, some minor irregularities can still be accepted. Normally, these would be limited to clerical errors, where it is clear that the bidder has no intent of deviating from the rules of the competition. Bids without a

signature but accompanied by a proper bid security, would clearly prove that the bidder is in good intent and the irregularity should have no bearing. Equally, a bid with a missing date or a bid with minor arithmetical errors should still be accepted after the errors have been rectified.

There is a tendency among clients to allow some flexibility in regards to minor irregularities during bid submission. After all, it is the interest of the client to receive and evaluate as many offers as possible. However, if the client is too liberal in this regard, it may lead to discontent among some of the tenderers and finally leave an impression that the bidding rules are either less important or that the client is favouring some particular firm(s). This situation should be avoided at all costs, as it may not only discredit the client, but may also jeopardise the planned start of works and delay the completion date, if complaints are lodged.

It is important to note that complaints of unfair competition or treatment from the tenderers is a common cause for delays during the bidding stage, which in the next turn delays the planned commencement of works.

5.4 Bid Validity

The bidding instructions will state how long the bids should remain valid. This implies that the client will not accept any price increases during this period. The contractors will need to incorporate any possible cost increases during the bid validity period in their price offers. For the client, it is important to complete the bid opening, tender evaluation and contract award during this period.

Once the bid opening session has commenced, the bidders will not be allowed to withdraw or modify their bids. If a bidder still insists on withdrawing a bid after the bid closure date, the bid security will be forfeited.

Once a contract has been awarded, the signed agreement between the contractor and the client will contain a new set of clauses on how to deal with cost increases during contract execution. The bid validity period is normally set to a duration from 30 to 90 days. A longer bid validity period may lead to the contractors increasing their prices to secure themselves against any future cost increases. For this reason, the bidding stage needs to be streamlined and kept to the shortest possible duration.

If a contract is not awarded within the period of the bid validity, the client may request the bidders for an extension. This should be done in writing and it should be done under the assumption that the bidder may choose to deny the client this option. If a particular bidder is not willing to extend the bid validity period, he should then be free to withdraw his/her bid without forfeiting the bid security.

Bidders should not be requested nor permitted to change the price or other conditions of their bids when the client requests an extension of the bid validity period. If bid securities are applied, it will be necessary to extend the validity of the bid securities as well.

In order to retain all bid proposals, it is therefore important that the client makes

sure (i) that the bid validity period provides sufficient time to conduct all the activities of the bidding stage, and (ii) streamlines these activities in such a manner that a contract is awarded before the bid validity expires.

5.5 Reporting

The conduct of the bid opening session needs to be documented for later reference - in particular for the purpose of bid evaluation. Normally, the client will use a standardised form in which all the bids are recorded.

It is also normal procedure to record all the participants to the bid opening session. Government procedures may require certain participants from the finance section or from the Ministry of Finance. Equally, the client may wish to see the project manager present during the bid opening, and for this reason, it is important to document their presence, thereby showing proof that the bid opening was conducted according to established procedures with the required participants. In government agencies where contracting of works is common, there will usually be a bid opening committee with a predefined number of members.

The details of the bids need to be recorded in an official report. This would include:



- B name of bidders,
- B prices offered,
- B any alternative bids,
- B whether the bid conformed to the instructions to bidders,
- B any disqualified bids.

If there has been any irregularities in the bids, these need to be recorded properly. If any corrections has been allowed, these need to be documented. Normally, any arithmetic errors in a bid offer may be rectified. If the bids are not too comprehensive, the client may wish to check for such errors already during the bid opening session. For example, when bids are based on a bill of quantities, it may be common procedure to check that each of the cost items are the product of the unit rate and the quantity. If any discrepancies are found, the instructions to bidders may define a procedure for rectifying this error.

If any bids are disqualified, the reasons for this must be clearly documented in the report of the bid opening. If this is not carried out, the client may at a later stage face difficulties in justifying such actions in case the disqualified contractor lodges a complaint on the basis of unfair treatment.

The report of the bid opening session should be properly filed and may be subject to inspection as part of the regular audit of project accounts. If the project is financed by outside sources, i.e. through donor support or through an international lending institution, these organisations may require a copy of the report. Equally, a copy may be required by central headquarters or by the Ministry of Finance.





Chapter 6

Evaluation of Bids

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6.1 Time and Venue

Bid evaluation should be carried out as soon as possible after the bid opening. It is important to bear in mind that the bid evaluation is a distinct exercise separate from the bid opening exercise.



While the bid opening session is open for the public to participate in, and in particular the firms from which bids have been received, the bid evaluation is an internal management meeting in which all discussions are confidential. This implies that only the members of the bid evaluation committee are present during this exercise and their final selection of most successful bidder should not be announced before any final approval of the evaluation has been obtained. Information relating to the examination and evaluation of bids and recommendations concerning awards should not be disclosed to other persons not officially concerned with this process.

The timing of the bid evaluation is important since it needs to be completed within the period of the bid validity. For this reason, it is useful to organise this exercise as soon as possible after the bid opening session, only allowing a limited time for the project manager or other technical staff to carry out an in-depth review of the most attractive bids.

This implies that the time and venue of the bid evaluation should be established well in advance, thereby securing the necessary attendance of each of the committee members. Equally, the date of this meeting will require the technical staff to set aside sufficient time between the bid opening and the evaluation to carry out their review of the tenders. On very small contracts, the detailed review is simple and may not require any additional time, and the evaluation can be carried out immediately after the bid opening ceremony.

6.2 Bid Evaluation Committee

In most government agencies, the individual members of the bid evaluation committee is pre-selected consisting of various management staff from the agency, representing the technical section as well as the finance sections. There may also be representatives from the other ministries, such as the Ministry of Finance. Also, the headquarters office may demand some form of representation on the Committee. Usually, the project manager will be requested to attend these meeting as well.

In many countries, government organisations will have a separate tender board. These tender boards may consist of political representatives of the community, such as selected village councillors. In other cases, the tender boards are organised as a central committee serving several government agencies and departments. These tender boards may consist of politically elected officials, civil servants or a mixture of the two groups. What is important to note here, is that a tender board may not necessarily consist of technical staff.

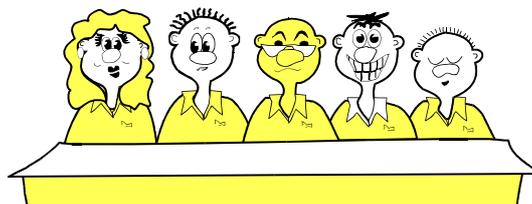
It is useful for the project manager or a representative for the project to attend the tender evaluation in order to (i) provide advice on the technical requirements of the contractors, (ii) provide a technical assessment of the bid proposals, and (iii) act as a resource person in terms of additional information related to the work programme.

Before the bid evaluation committee convenes its meeting, it is important that the project manager carries out a series of preparatory activities. The most important duties before conducting the bid evaluation are (i) to prepare the Engineer's Estimate (if not already completed) and (ii) perform a final check of the bids for any arithmetic errors. In addition, there might be a demand for verifying the firms qualifications, whether they have the necessary capacity to carry out the works, current work load, their past performance, their staff availability, condition of tools and equipment, etc.



This information should be presented in a summary table to the bid evaluation committee when it convenes, thereby assisting its individual members in making the right assessment of the bidders and finally taking the correct decision in terms of the best bid.

Once the ratings of the bidders have been decided upon, a Bid Evaluation Report is prepared and submitted for final approval. This report should list the most successful bidder, the second best, the third best, etc. (if any). If for any reason the most successful bidder decides not to carry out the contract, the evaluation committee has thereby already decided that the second best bidder will be awarded the contract.



6.3 Ranking

It is generally believed that the contract should be awarded to the lowest bidder. Most bidding procedures are actually far more comprehensive in terms of selecting the most appropriate bid. It is useful to clarify this when the bidding process commences, so that the competing firms are informed in advance what criteria will be applied during the evaluation. The criteria for selecting a bid can be described in the instructions to bidders. The instructions will normally contain a clause that prescribes that the contract will be awarded to the lowest responsive bidder who has submitted a bid according to the prescribed tender procedures.

Particular Case of Low Bids

A potential danger of competition, when it is very lively, is that bidders are encouraged to quote very unrealistic prices. The result is that contractors will be unable to complete the works, or will fail to respect quality standards for fear of losing financially. But rigid application of the minimum threshold for responsive bids is not the answer. In the first place, the desire to find out what this minimum threshold is can become so pressing that it fosters corruption. In addition, the engineer who estimated the cost of the works is not always better informed than the contractor about real costs. When a very low bid is offered, the contractor should be asked for an explanation, and if there is an obvious error of computation, the bid should not receive further consideration. But it can happen that the contractor will offer a logical explanation that still leads to a price regarded as very low.

Therefore, the bid evaluation committee is not obliged to choose the lowest bid received. The selection of the best offer should be based on several factors, bid price, past performance, staff qualifications, present capacity, etc.

As mentioned earlier, the bidders also need to conform to the conditions for prequalification. Normally,

this would require the contractors to be classified in a certain category, in order to exclude incompetent, underfinanced and inexperienced firms from consideration.

Equally important is the contractors' current capacity and availability to carry out the works during the period envisaged in the physical work plan. If it is evident that a firm cannot carry out the works between the start and completion dates envisaged in the bidding documents, the bid should be given a lower rating or rejected.

Finally, the client may for evaluation purposes define a minimum of inputs, in terms of equipment and skilled manpower. If the bidder does not meet such requirements, it may be regarded as not responsive and for this reason rejected. There is no reason for the client to consider bids from firms which, based on their bid proposals, is not expected to meet the planned performance requirements.

For example, a client would estimate that a contractor would need a minimum of six tipper trucks in order to provide gravel at a certain pace to a construction site. If a bidder has proposed less trucks, and which are old and most probably in a poor condition, the evaluation committee may decide that the bid is not responsive and reject it.

When evaluating bids it is essential to bear in mind that the best bid is the one submitted from the company which appears to provide the best proposal both technically and financially. The evaluation committee therefore has a duty to ensure that their decisions are contributing to the most efficient execution of the works, by

selecting a contractor which is not only cheap but also competent enough to carry out the works on schedule and to the right quality. This task is evidently more demanding than just finding the cheapest offer which adheres to the bidding rules.

It is important that only bids which are not rejected are given a priority rating. This implies that any bid which is deemed too expensive or not qualified should be rejected as a whole and for this reason not to be considered from then on as a possible contender.

Price Negotiations

A common question is whether to enter into price negotiations with one of bidders during the bidding stage. As a general rule, the purpose of having a bidding competition is to avoid long and tedious negotiations with selected contractors. Likewise, when entering into price negotiations, the degree of transparency required may be compromised. Therefore, the prices submitted by the tenderers should be regarded as their final offers, and the client should refrain from any price negotiations with individual firms. If this is made clear to all contractors and established as a standard practice, the contractor will take this into consideration when calculating their prices. If the client has a habit of negotiating the price offered in bids, there is a chance that the contractors will regard this as an additional risk and increase their prices.

Finally, it should be noted that the bid evaluation committee has the authority to reject any bid or all bids. If all bids are rejected, a rebid needs to be arranged.

In order to obtain more competitive prices during the second bidding round, the client needs to ensure that more firms will submit bids, this way increasing the chances of obtaining better offers.

Rebidding is a situation which the client wishes to avoid, since it basically implies that the entire bidding process needs to be repeated. Not only is this a waste of resources, but it also places considerable delays on the date for commencing physical works.

6.4 Deviations

Before the commencement of an evaluation meeting, it is important that the project manager confirms that the bids are responsive in terms of actually providing price offers which cover all the envisaged works as described in the drawings, work specifications and bill of quantities. Also, all materials and completed works need to conform to established performance requirements and established quality standards.

During the review of the bid proposals, the project manager may discover that a bidder has made changes, variations, omissions to the works prescribed in the bidding documents.

For minor deviations, a common procedure is to determine the monetary value of the deviation and add/subtract this to the total bid price, thereby arriving at a total price representing the real cost of the entire works, and which can be compared to the prices submitted by the other bidders.

If the deviations consist of substantial changes to the original design and quantities of work, this specific tender should be regarded as not responsive and be disqualified (unless alternative bids are allowed for). Equally, if it is difficult to

establish the monetary value of a certain deviation, it is recommended that the bid is rejected.

Clarification

In certain cases, it may be unclear whether a bid proposal conforms to the performance requirements in the bidding documents. The bid evaluation committee, or the project manager while reviewing the tenders, may for this reason seek clarification of information contained in the tender. At the same time, the bidder may be informed of any arithmetic errors in his/her proposal. Normally, this would only be done in relation to the two or three lowest bids. Clarifications should be limited to obtaining additional information as regards to the contents of the works. It should not include any soliciting of price reductions or changes to the conditions of the future contract.

The procedure for dealing with deviations is a matter of discipline and how strict/flexible the client would want to be in terms of adherence to the bidding instructions. This needs particular consideration when managing projects with external funding. For example, in projects with financial support from the World Bank and ADB, the evaluation process would be under external scrutiny, and to be fully sure of obtaining the clearance of these organisation, it would be wise to prescribe strict rules and practices.

6.5 Reporting

The summary findings of the bid evaluation committee is documented in a bid evaluation report. When external funding is involved, the findings of a bid evaluation may have to be approved by the financing institution.

This report would normally contain the short list of evaluated responsive bids, the justification of this selection, i.e. the evaluation criteria and the assessment of the qualifications of the bidders and their offers, the basis for rejecting and disqualifying certain bids, the composition of the tender committee, date and venue.

The evaluation report needs to be filed as it forms part of the documents which are subject to financial audits. As mentioned earlier, this report may also be subject to scrutiny by an external funding institution (bank, donor, NGO, etc.).





Chapter 7

Contract Award

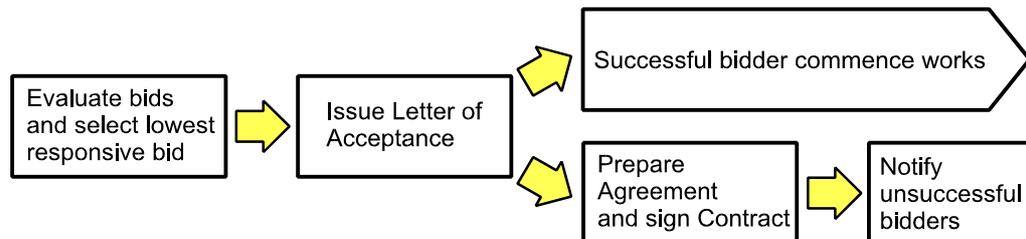
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7.1 The Process

After final approval of the findings of the bid evaluation, the contract is awarded to the most successful bidder. The contractor should then be notified immediately, thereby allowing him to mobilise as soon as possible.

Contracts should be awarded within the period of the validity of the bids. A bidder should not be required, as a condition of award, to undertake responsibilities for work or services not stipulated in the specifications. No attempt should be made to force bidders to reduce prices or to modify a bid as a condition of contract award. Reduction of prices could result in insufficient funds to carry out the contract. This could cause the contractor to substitute poor quality materials or to be unable to perform, resulting in a major delay in project implementation during which the problems are rectified.

The contractor would normally be expected to mobilise as soon as possible after receiving a notification of award. Actually, the contractor is expected to commence even before a contract agreement has been signed. The contract award process is summarised in the figure below:



7.2 Notification of Award

When all queries to the lowest responsive tender has been clarified, the client will issue a letter of acceptance to this bidder informing that he has been awarded the contract. This letter will also include instructions related to when and where a final contract agreement will be signed.

Since the decision as related to the contract award is already been cleared by the tender board and any other responsible parties, there is nothing which stops the selected contractor to commence works. Normally, the letter of acceptance from the client will stress this point and make it clear to the contractor that although an agreement is still not signed, the contractor can at this point mobilise and commence works.

It is normal procedure that the contractor is requested to acknowledge receipt of the letter of acceptance. This letter is normally issued to the contractor by courier or by hand carrying it, thereby making sure that it is quickly and safely received. The client will want a the contractor to confirm that he has been notified by signing the notification and returning within a couple of days.

To: *Sunshine Construction Co. Ltd.*
P.O. Box 5639
Phuket

Pang Nga, 11 February 2001

Dear Sir,

Notification of Award - Road Rehabilitation Works

We have the pleasure of informing you that your tender dated 5 January 2000, has been accepted for the road rehabilitation works situated at: *DR535 Chainage +2,650 to +17,900 from Pang Nga to junction with NR23*, subject to the Conditions of Contract, Form of Tender, Bill of Quantities and the Works Specifications in the tender documents and this Notification of Award.

The total tender amount of the above items is USD 85,230:- (*eighty five thousand two hundred and thirty US dollars*).

The Contracts Documents have now been completed for your signature (or that of your authorised representative). Please call at the District Assembly to complete the signing of the Contract at your earliest convenience and latest within three days of your receipt of this letter.

Until a formal agreement is prepared and executed, your Tender, together with this Notification of Award shall constitute a binding contract between us.

Your sincerely,



Chief Executive Officer
 District Assembly

The undersigned hereby acknowledges the receipt of the above letter, a copy which has been retained, and confirms that no terms, conditions or stipulations to those contained in the Tender Documents have been imposed by the issue of this letter, except as have been advised in writing by the undersigned.

Name: *K. Tusanasorn*
 Contractor

Signature: 

Date: *15 February 2001*

Once the contractor acknowledges the receipt of the letter of acceptance, the client will prepare a contract agreement for signature by both parties. At this stage, the client will be eager to start works immediately, and for this reason, will require the contractor to sign a contract as soon as possible. This deadline may for local contracts be within two or three days. If the contractor is not permanently based in the project area, it would be necessary to allow for one or two weeks from notification to contract signature. If the contractor does not sign the agreement within this period, the client may interpret this as if the successful tenderer is no longer interested in carrying out the contract. The client is then free to award the contract to the next best tenderer.

If a performance bond is required, the contractor will receive instructions in the letter of acceptance on how this can be arranged to the satisfaction of the client. The client may attach the standard forms used for this purpose.

Finally, the letter of acceptance will inform the contractor where he can sign the contract, and where and when he can have his/her bid security returned.

In some cases, a contractor who is notified as the lowest bidder may not want to enter into an agreement with the owner. This may be the case when the bidder is substantially lower than the engineer's estimate. Equally, the contractor may have been engaged on other works during the bidding process and therefore has no remaining capacity to carry out the newly awarded works.

Alternatively, a contractor may wish to increase the bid prices before he/she accepts the contract. Unless the reason for this is due to minor arithmetic errors not discovered during the bid review, this should not be accepted. Even if this specific bid is still lower than the next lowest evaluated bid, the client should refuse to enter into such negotiations. If the selected contractor does not honour its bid price, he/she should be disqualified.

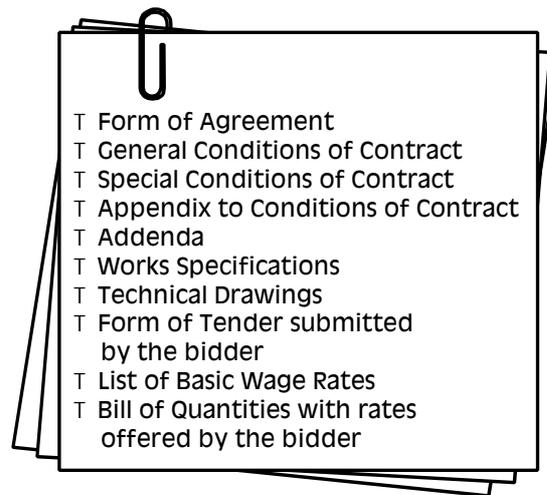
This situation can easily be catered for during the tender evaluation, by ranking a number of bids. This way, the project management can therefore award the contract to the second best tenderer if the highest ranked tenderer loses interest in the contract. Obviously, if the lowest evaluated tenderer refuses to sign the contract agreement, he/she will forfeit the bid security.



7.3 Contents of the Agreement

Government agencies will normally use a standard Form of Agreement when awarding a contract. During the bidding process, a sample of this document is issued as general information to the tenderers. Tenderers do not need to fill in any information in this Form when submitting their bids. Only once the bid evaluation has been approved, the Agreement is prepared by the client and issued to the contractor for signature.

When issuing a contract, the following documents would be included as part of the agreement:



The contract is prepared by a Project Manager or a supervising engineer. It is based on the documents issued during the bidding process and the price offered by the contractor. When preparing the contract agreement, no changes should be made to the conditions of contract. Furthermore, the contract should include the detailed breakdown of prices in the Bill of Quantities and List of Basic Wage Rates as submitted by the bidder.

As can be seen from the above list, the instructions to bidders do not form part of the contract agreement. Those instructions are only relevant to the bidding process, which is completed by the time a contract is awarded. Instead, general rules and regulations are instead regulated by the conditions of contract.

The contract agreement should be signed by an executive officer on behalf of the client and an authorised representative of the contractor. Once both parties have signed the contract, a full copy should be sent to the project management office and made available to the supervising engineer. It is interesting to note that although the engineer is mentioned in a contract, vested with substantial authority, he/she is not a signatory to the contract.

The contract agreement serves as supporting evidence for any payments processed during the implementation of the contract. Therefore, it needs to be readily available to be used for justification of payments of works and finally to be subject to the annual audit.

7.4 Notifying Unsuccessful Bidders



Once a contract agreement has been signed with the most successful bidder, it is common procedure to inform the other bidders that their tenders have been unsuccessful. At the same time, the client is obliged to return the bid securities to all the bidders.

The decision of the bid evaluation committee needs to be publicly announced. For public works contracts, the government may have established procedures for disseminating the decisions of the bid evaluation. The ranking decided upon may be announced in a government gazette or simply by posting it on a dedicated notice board, often the same place as where the bid competition was first announced.



For larger contracts, it is appropriate to notify all the unsuccessful tenderers in writing. This should be done after the successful bidder has been notified and signed a contract. If the selected tenderer for some reason, decides not to sign the contract, it is then still possible to offer the contract to the second best bidder.

If bid securities were applied and they were provided in the form of cash or cheque, the client will need to obtain evidence of receipt from the bidders when they are returned. Bid securities must be treated in the same manner as all other cash, in other words, it needs to be accounted for according to established government procedures when received as well as when it is disbursed. The bid securities can be sent to the contractors, or alternatively, the client may instruct the bidders in the notification where and how it can be collected from a designated finance officer.



Chapter 8

Contract Documents

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8.1 Preparation of Contract Documents

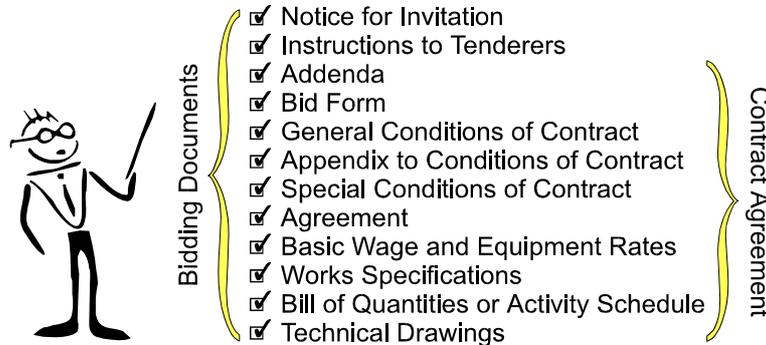
Contracts form the legal agreement between two parties for the procurement of goods or services. In the field of civil works, the contract will relate to the construction of some facility. The size, complexity and cost of such facilities may vary widely. All contracts need to be legally valid and need to cover certain fundamental requirements to enable them to effectively serve their purpose. With care, they can be written to cover the basis essentials in appropriate detail to the size and complexity of the works to be undertaken.

Even if documents of greater or less detail are to be used for the varying scale of works, one essential element is to attain continuity throughout the different documents. This will enable any contractor development programme to operate in an orderly sequence as contractors move through the various categories of contracts based on increasing complexity and volume. Thus a contractor or contracts manager understanding the concepts of a contract document in its simplest form, will find a familiarity with the more detailed documents used for larger projects.

Contract documents are either prepared by the client's representative or a private consultant engaged for this specific purpose. If the client is a technical agency such as a provincial road authority, the preparatory work is often carried out by in-house technical personnel.

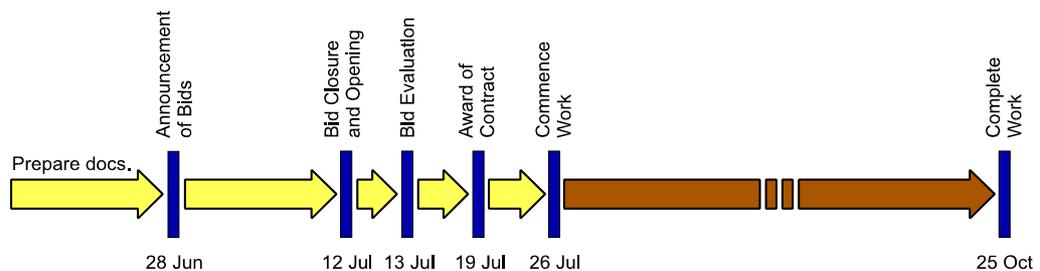
In some cases, the supervising engineer is a private consultant appointed before the

works commence and is also requested to prepare the contract documents. Alternatively, the design engineer is engaged to carry out this work as the final task of his/her assignment. Normally, the contract documents comprise of:



As mentioned earlier, most of the documents are the same for both the bidding and construction stages of the project - the main difference that the invitations and the instructions to bidders are not part of the contract agreement.

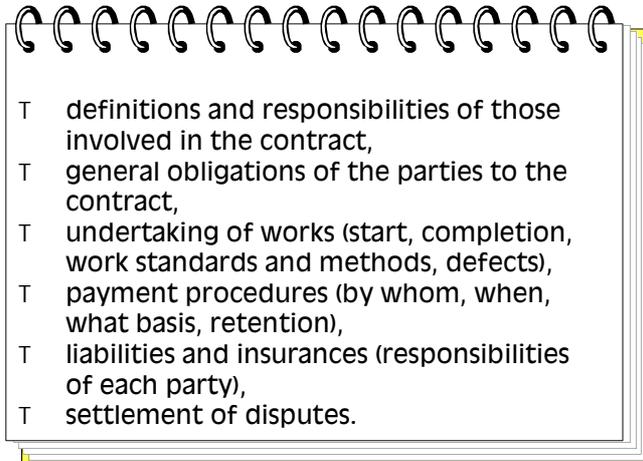
In cases where the client is planning to engage several contractors on one project, it is important that a time schedule is fixed and agreed before commencing on contracts preparation. Important dates include date of announcement, bid closure, commencement and completion of works. Remember that these dates need to conform with the overall work programme of the project as well as any other contracted works planned for each part of the project (i.e. bridges, culverts, gravel supply, etc.). It is the responsibility of the project manager to coordinate the various components of the contracts preparation process with the overall physical works programme.



8.2 General Conditions of Contract

In order to create an environment in which the contractors may succeed on a long term basis, there needs to be as much emphasis on good, clear and fair conditions of contract as on the technical standards of the construction works itself. To this end both the contractors themselves, the client, the engineer and their staff need to be made fully aware of the rights and obligations contained in the contract and, most importantly, how they are to be operated in practical ways during the performance of the contract.

There are some basic requirements for all conditions of contract for civil works, and these may be summarised as follows:



Various standard conditions of contract have been developed by different organisations. In addition to the standards applied by various governments, the most common ones which are relevant to small-scale contracting are as follows:

- Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, published by FIDIC,
- Short Form of Contract, published by FIDIC,
- Standard Bidding Documents, Procurement of Works - Smaller Contracts, World Bank, 1995
- Sample Bidding Documents: Procurement of Civil Works (Small Contracts), Asian Development Bank, 1996

Most parties in the construction sector prefer the use of standardised general conditions. Similar to standard work specifications, well established conditions of contract have the advantage of being familiar to all parties and the wording is clearly understood. By using standard documents time is saved during preparation instead of redrafting the conditions for each project. Furthermore, these standardised conditions have often been tested in court so that the legal interpretation is known.

When applying standard conditions of contract, there is normally no need to make any changes from one works contract to another. These documents only contain general clauses which relate to all works contracts. Any details relating to a specific contract are referred to and contained in the Contract Data or Appendix to Conditions of Contract.

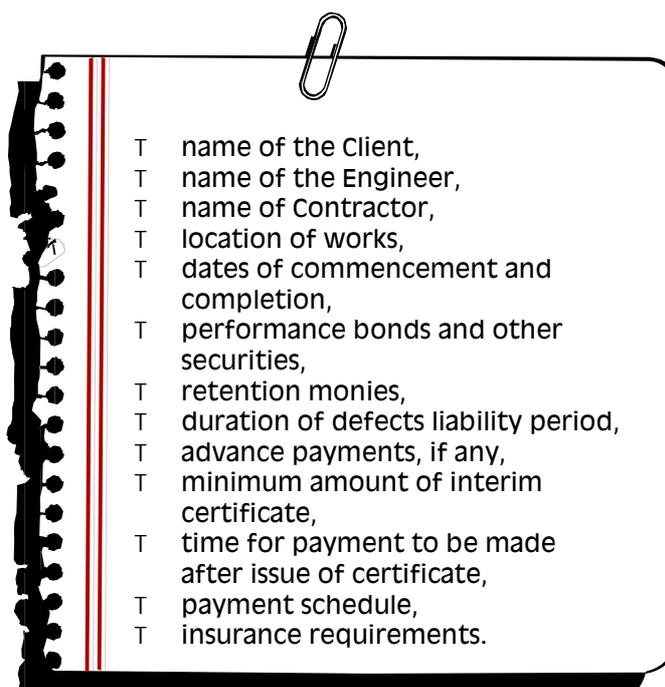
8.3 Contract Data

The main purpose of using an Appendix to the General Conditions of Contract is to leave the contents of the general conditions unchanged for all works contracts and instead include all the project specific conditions in an appendix. This simplifies the contracts preparation as well as provides a clear distinction between fixed terms and the conditions which vary from one contract to another.

This document is issued as part of the bidding documents and it forms part of the final contract agreement. By collecting all contract specific information in the appendix, the bidders can easily identify the key data which may change from one contract to another.

Equally, during works implementation, the appendix acts a short and concise reference to all the detailed contents of contract conditions.

The appendix should contain specific information which is only referred to generally in the general conditions. This includes:



The Appendix to Conditions of Contract forms part of the contract documents. Since all procurement is subject to audit, this document needs to be properly filed together with the contract agreement.

8.4 Special Conditions of Contract

Instead of changing or adding to the contents of the general conditions, the normal practice is to place additional clauses related to the overall conditions of contract in a separate document usually referred to as the special conditions of contract.

When applying labour-based works technology, this impose certain contractual constraints which need to be clarified. The proper place for this is in the Special Conditions of Contract. The issues which need to be covered are:

- the application of labour-based techniques for the implementation of works,
- the importance of a detailed work programme showing the mix and balance of labour and equipment, subject to approval by the engineer before commencement of works,
- the authority of the engineer to limit the contractor's use of plant and equipment on site during the construction,
- the need for the contractor to keep comprehensive and accurate employment records,
- the system for the recruitment of workers to be on a local basis as the construction progresses (eg. village-by-village)
- the access of the engineer to inspect labour records and payment sheets,
- the power of the client in the event of a default by the contractor in paying the workers' wages,
- the power of the client to deduct directly from the monies owed to the contractor any agreed repayment instalments for materials and tools provided to the contractor under the contract,
- the conditions covering the use of sub-contractors.

8.5 Work Specifications

The work specifications contain the detailed instructions on how the various work activities are to be carried out. In addition, these specifications will normally include instructions on the quality of the materials and workmanship performed. Proper specifications will also describe the method of measurement and payment of completed works, with detailed descriptions of which activities are included in an activity or bill item and which activities are not included.

The work specifications may also include instructions on when certain works need to be inspected and approved before further works may proceed. For example, the contractor may have to wait until the engineer has inspected the reinforcement before pouring of concrete is allowed to proceed.

Example:



The drawings provided in a contract may show the geometrical features and dimensions of a bridge abutment, however, the quality of the works needs to be described in addition. The works specifications prescribe the quality of the cement, water and aggregate, the method of mixing, placing and curing, how the foundation should be prepared and the compaction of the backfill. The specifications may also prescribe that the foundation and casting forms are inspected before placing of concrete. Finally, the specifications describe how the works are measured, thus forming the basis for payments.

Types of Specifications

Specifications can be prepared in different ways. The most common method of describing the works is by issuing design specifications. This implies that the works are described in terms of a particular type of materials to be used, a particular dimension is required and the installation instructions are given in detail.

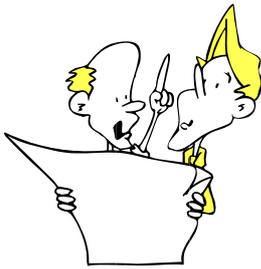
The opposite of such specifications would be performance specifications, where the results or intentions of the finished product are described. In this type of specifications, the details of materials and how to carry out the work, is left with the contractor, only ensuring that the end product meets certain performance requirements. If the selection of materials and work methods, proves to be inadequate, the fault is entirely with the contractor which then needs to redo the works using improved quality of materials and workmanship.

The strength of performance specifications is that it is then possible to maximise the experience and knowledge of the contractor in terms of executing the works. In most cases, the specifications will consist of a combination of two, i.e. specific work methods and materials will be prescribed as well as the end result.

Closed specifications requires a specific product or equipment to carry out the works. The purpose of this type of specifications is to ensure that only products of a particular brand is used. Normally this is not allowed for in public contracts since it limits competition. In private contracts, however, it is quite common that the client will for example specify the brand names for certain building materials.

In public contracts, the specification must be open, i.e. the contractor is free to choose the manufacturers of materials and equipment as long as they conform to prescribed quality and performance standards. This implies that the client is not allowed to prescribe the use of materials or equipment from a particular manufacturer.

In some cases, it may be easier to specify a certain brand instead of the performance requirements. In order for the specifications to remain open, it is possible to add a clause allowing for products of similar quality (i.e. Diamond Brand cement or approved equivalent). This places the final determination of the acceptability still with the client and also allows for free competition between various manufacturers.



It is common to have standardised specifications in highway and bridge construction. These are often applied by road agencies and are modified only to satisfy unique situations. These standards apply to any contracted works on the public road network. When such specifications exist, the contract documents often only include the deviations made from them. It is expected that road contractors are familiar with the standard documents and will only need information on any of the conditions which need to be altered.

Preamble

Work specifications often include a general section before each of the work activities are described. This foreword would provide general instructions how the specifications should be interpreted as well as general provisions which apply to the works as a whole.

A basic principle often found in the preamble, is a clause stating that the bill of quantities are all inclusive, meaning that any sub-activity which is not explicitly listed as a bill item, will be treated as part of the other work activities listed in the Bill of Quantities. This is a clause commonly applied to activities such as maintenance of traffic, temporary works, signboards and operation of site camp. Unless such works are listed as distinct items in the bill of quantities, their costs are assumed to be included under the listed bill items.

The preamble may also regulate the contractor's dealings with private owned land. Basically, all issues related to land acquisition including buildings and other structures, need to be handled by the client as the owner of the project. The client may choose to identify a suitable location for the site camp, or alternatively, this is left entirely for the contractor to sort out.

The preamble would normally provide instructions on when and at what frequency the contractor should produce work programmes and have them updated. However, the preamble will not say what happens if a work programme is not adhered to. That is regulated by the general conditions of contract.

Measurement and payment may cause contention between the client and the contractor. For this reason, appropriate clauses are included in the preamble to describe how work activities are measured and paid for. A common feature when

dealing with bill of quantities contracts is a clause stating that (i) payments shall be based on the actual quantities of authorised work, and (ii) tendered rates shall apply irrespective of whether the actual quantities are more or less than the billed quantities. This implies that the contractor cannot take for granted that the exact quantities listed in the contract will be carried out and paid for. Equally, the client is not secured against any additional quantities and increased costs when the contract is based on a bill of quantities.

Finally, each activity listed in a contract should include procuring and transporting materials, labour costs, supervision, tools and equipment, wastage, testing, insurances and other related costs, in addition to carrying out the described works.

Technical Manuals

In addition to the work specifications and drawings, technical manuals may also form part of the contract and used as a reference when the above mentioned documentation proves insufficient. This can be arranged by including appropriate clauses in the preamble, referring to other technical manuals which standardise how works should be carried out and how completed works and materials should be tested.



If such references are made, the client should make sure that the contractor, have sufficient copies of such manuals and that they are readily available to the site supervision staff.

In programmes where local contractors have carried out works using labour-based work methods, the client may choose to include a general reference to the choice of technology in the preamble.

Example:

..... These Specifications are written on the basis that the Works shall be constructed using a labour-based works technology. The Contractor will be expected to maximise the use of labour for all operations where it can be effectively used to attain the required standards....

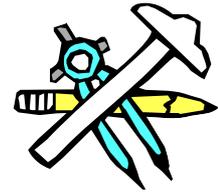
This can be further strengthened by including a specific reference to appropriate literature:

.... The Technical Manual for the Construction of Rural Roads using Labour-based Work Methods shall be construed to form a part of these specifications, and shall be referred to for any item not covered in this Works Specification. The Employer shall provide the Contractor with sufficient copies of the Manual for this purpose....

8.6 Technical Drawings

All civil works contracts will contain a set of drawings which graphically describe the works to be carried out. The detail of the drawings may vary, depending on the complexity of the works and to what extent the works adheres to common building practices. Some contracts will only contain rough sketches of the works, while other may include detail drawings to scale showing all angles of the work, details of joints, roofs, ventilation, electrical and plumbing schemes, etc. The drawings may also include results of soil tests, location of quarries, site photographs, flood maps, condition inventories, etc.

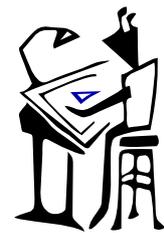
For lump-sum contracts the bidding documents does not contain any bill of quantities. In such cases, the contractor will need to calculate the volume of works and materials based on the drawings provided.



When the project consists of constructing new buildings or structures, the drawings will provide a clear presentation of the works. On rehabilitation projects, however, the actual works to be carried out, may not be equally clear from the drawings provided. The drawings often represent the final product and may not necessarily say anything about the current condition of the structures on to which improvement works are planned. Therefore, it is crucial that contractors bidding for rehabilitation works, make site visits during the bidding exercise.

For structures and other works which the client carries out in great numbers, there may be standardised drawings produced. In such cases, the contract may be limited to these drawings, and obviously does not provide any information about the current conditions at the project site. It would then be crucial for the contractor to inspect the project site to establish the exact topography, soil conditions and the presence of water.

For road works, the client would normally provide standard drawings of the road cross section, the most common design of cross drainage structure, and any particular designs which deviate from the standards. In addition, there will be surveys of the alignment for new construction and road condition inventories describing the exact location and condition of existing roads, quantities of work in volume tables and location maps.



Road condition surveys would normally form the basis for the calculation of the Engineer's Estimate. If this was done some time ago, i.e. during project appraisal, the current condition of the road may have changed considerably. If the road surveys were carried out before the last rainy season, there has most probably been a further deterioration of the road, and the contractor will find that the volume of works has increased. If the contract price is based on a bill of quantities, there would normally be adequate provisions for compensating the contractor for such additional work.



Chapter 9

Mobilisation

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9.1 Advance Payments

Advance payments are sometimes accepted by the client to enable the contractor to start purchasing materials and mobilise equipment when embarking on a new contract.

Any advance payments will normally be balanced with an advance mobilisation security required from the contractor. The purpose of this security is to safeguard the client from a situation in which the contractor abandons the contract after receiving the advance payments.

An advance payment security is normally organised through a bank and would normally be to the same amount which the client is accepting as advance payments. Obtaining such services from banks are difficult for small contractors and in any case they are all costly for the contractor (and thus ultimately for the client). For this reason, they should not be included as a matter of course but carefully considered for each type of works to be undertaken.

For smaller works, funds required for mobilising equipment is often limited, so the main expenses will normally be related to purchase of materials when the contractor starts his/her works. In many countries, suppliers of building materials will grant the contractors sufficient credit against a signed contract with a reliable client. In such cases, the contractor actually achieves his initial credit requirements from his/her regular material suppliers.

Labour-based Road Works

For labour-based rural road works contracts the need for initial capital is minimal (also when operating a tools and/or equipment leasing or hiring scheme). Experience show that material costs are usually less than 10 percent of total road construction costs. For this reason, it is generally recommended that advance payments are omitted. Instead, it may be required to install specific measures to ensure that the contractor possesses the means to provide timely payments of the labour force, as described in the following chapters.

In other cases, the contractor will have access to other informal lending sources than the banks.

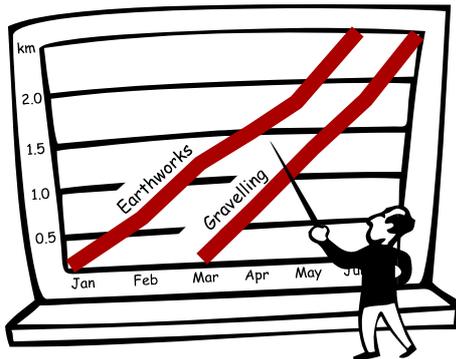
The ideal situation is to operate with contractors which can mobilise their initial cash requirements without the assistance of the client.

9.2 Work Programme

Following the notification of the award of the contract, it is normal practice that the contractor is expected to prepare a work programme indicating the start and duration of the various work activities. Also, the mix and balance of labour, plant and equipment which the contractor intends to use for the execution of works may need to be presented to the client. The contractor would normally not be allowed to commence works before the work programme has been approved by the client or the supervising engineer.

When applying labour-based work methods, it is important that the contractor prepares a schedule clearly demonstrating that the number of workers are gradually increased in line with the level of activity on site.

Some bidding procedures require that the tenderers submit work programmes as part of their bid proposals. The advantage of this system is that the quality of the work programmes could reflect the knowledge and competence of the contractor to carry out the envisaged works. On the other hand, it is often unlikely that the contractors will be sufficiently motivated to spend any serious time and resources on developing a realistic and comprehensive work plan before they have been awarded the contract.



Work plans should be presented graphically, either as bar charts, or when dealing with road works, as time location charts. The work plans should act as the basis for discussions on progress between the contractor and engineer. For this reason they will need to be regularly updated - at least on a monthly basis.

The Engineer needs to ensure that works carried out under different contracts are carefully coordinated making sure that activities are carried out in the correct order. Equally, the main contractor needs to assure the client that any

subcontractors will be mobilised on time, when it is appropriate for them to provide their agreed services.

Example:

Under a road works contracts, the construction of culverts and bridges and delivery of gravel may be contracted out to separate firms. This work needs to be timed in a manner so it is carried out in the correct sequence as compared to the earthworks along the road alignment. In this respect, it is important that this planning starts already before the preparation of each individual contract. The ideal situation would be to issue the culvert and bridge contracts first, thereby ensuring proper access when the road works activities commence. Finally, the laterite supply needs to be ready to commence immediately after the earthworks, thereby allowing the main contractor to complete the road construction works.



9.3 Recruitment of Labour

Before the contractor mobilises, it is useful for the project management to visit the villages in the vicinity of where the works will be taking place. The purpose of this visit is to (i) inform that a private firm has been appointed to carry out the works and request the local authorities and population to collaborate with the contractor, and (ii) explain that the works will provide certain employment opportunities for the local villagers.

When applying labour-based methods, the contractor is expected to recruit its workers from these villages so an early notice to the villagers will allow them to prepare themselves for work away from their normal economic activities and commitments.



During these visits, it is important to emphasise that the workers are employed by the contractors and not by the government authorities, nor the implementing agency or the donor. This implies that any grievances relating to their employment should in the first instance be directed to and settled with their employer, the contractor.

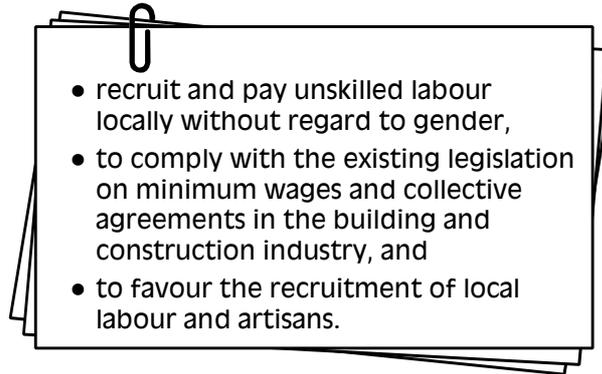
However, it is useful for the project to brief the villagers on the general conditions of employment which the contractor is expected to abide by.

These include:

- the conditions of employment, i.e. use of incentive schemes and basic wage rates, working hours,
- duration of work,
- various parties to the contractor and the roles of the supervising engineer and the client, and
- benefits or the lack of them.

The contractor is bound by the labour regulations and social legislation which are in force in the country. In particular, he/she must comply with the following rules: hours and conditions of work, minimum wages, freedom of association, other benefits and general health and safety regulations.

The client should instruct the contractor to:



As these issues are already covered by existing legislation in most countries, all contractors need to adhere to these statutory obligations. Still, some clients will wish to emphasise these issues by including appropriate clauses in the conditions of contract.

The contractor needs to keep updated records of the workers employed, the period they have worked and the wages paid. Pay sheets shall be made available to the client or his representative when requested.

Incentive Schemes for Labour-based Works:

Very often when developing small-scale contractors for labour-based works, the question of most appropriate incentive schemes arise. Incentive schemes to motivate the workers are regarded as a key issue in terms of proper work site organisation and obtaining acceptable production rates. In most labour-based public works programmes the use of task work has proven to be an effective way of organising the work force.

When introducing labour-based road works technology to private contractors, it is often claimed that piece work is a more effective incentive for the workers which may also enhance the profits of the contractors through increased production.

Experience have shown that the use of task work is the most effective method for inexperienced site supervisory personnel to quickly learn how to efficiently organise the workers on site. Applying task work forces the supervisors to assign each worker to a specific location and amount of work for each day. When this task has been completed, the individual worker is entitled a day's wage and free to leave the work site. By this, each worker receive clear instructions on work duties and conditions of work.

While task work follow clear and simple routines, the use of piece work requires more effort from the overseers to supervise and control. Although it may provide higher production rates once it is efficiently organised, it is not recommended before the site supervisory staff have a full understanding of task work and demonstrate that they are capable of organising a site and its work force in an efficient manner.

It is expected that the labour force is paid at regular intervals according to common practice in the area. In order to ensure the timely payment of wages, the client may include appropriate clauses in the contract stating that should complaints arise against the contractor for non-compliance to timely payment of wages, the client

may proceed with direct payment of the outstanding wages by charging them against amounts due to the contractor.

Example:**Special Conditions of Contract:**

In the event of default by the Contractor in paying the labour after not more than one month of working, the Superintendent shall have the power to pay the outstanding wages and allowances (if any) in accordance with the pay sheet records and to deduct the amount from any monies due to the Contractor. Continuing default by the Contractor may be a cause for suspension of work under the provisions of the contract.

Source: Rural Infrastructure Improvement Programme - Cambodia

On labour-based work projects, the timely payment of wages are crucial for maintaining work morale and thereby achieving good production rates. For this reason, it may be useful to install some kind of mechanism whereby the contractor can be paid for wage expenses before measurement of works have been completed. This can be arranged through the insertion of appropriate clauses in the special conditions of contract as shown below:

Example:**Special Conditions of Contract:**

.... At the request of the Contractor for immediate payment of the labour wages, the Superintendent may agree to certify, at intervals of not less than one month, the total amount of the Contractor's labour wages in accordance with the pay sheets, with an additional 10 percent for administrative overheads....

.... The amount of any payment made under this Clause shall be deducted from any monies due to the Contractor, for work completed, under a subsequent interim payment certificate....

Source: Rural Infrastructure Improvement Programme - Cambodia

9.4 Site Camp

T The contractor will need to find a suitable location for his/her site camp. For small-scale contracting where works are relatively limited, it is important that cost-effective solutions are found since the contract will only contain limited provisions for this purpose.

The site camp needs have sufficient capacity to accommodate the supervisors, materials, tools and equipment. The site camp needs careful planning to provide site staff with basic comfort, and adequate storage and security for equipment and materials. The contractor needs to carefully consider the following:

- T it should be close to the construction site, preferably in walking distance,
- T it should have access to drinking water,
- T it should be located on high, well-drained land,
- T it should have sufficient space for parking equipment after working hours, and
- T it should be easily accessible to vehicles bringing equipment and materials.

The access road to the site camp may need some improvements, and particularly during the rainy season, there may be a need for some limited road maintenance works.



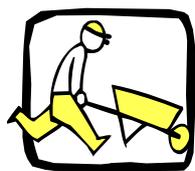
In most cases, the site camp can be set up in a local village in the vicinity of the work site. Then, suitable accommodation and stores can be rented from the local villagers. In more remote places, the entire site needs to be built by the contractor.

For road construction projects covering more than 7 to 8 kilometres, the camp will probably have to be moved once, twice or even several times. These moves have to be planned well in advance so that the necessary transport can be arranged.

The preamble to the bill of quantities will normally contain specific clauses related to the payment of activities related to the establishment, operation and finally the removal of the site camp. In most cases,

the client will provide free access to the land where the work site is located. However, the contractor will normally be required to negotiate and pay for any occupation of land or property for the purpose of establishing a site camp.

Upon completion of works, the contractor will be expected to remove all temporary structures, yard and workshops including removing drains and culverts, back-filling of trenches, filling of pit latrines, etc. and restore the site, as far as practicable, to its original condition and leave it neat and tidy.



Chapter 10

Contract Implementation

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10.1 Management Responsibilities

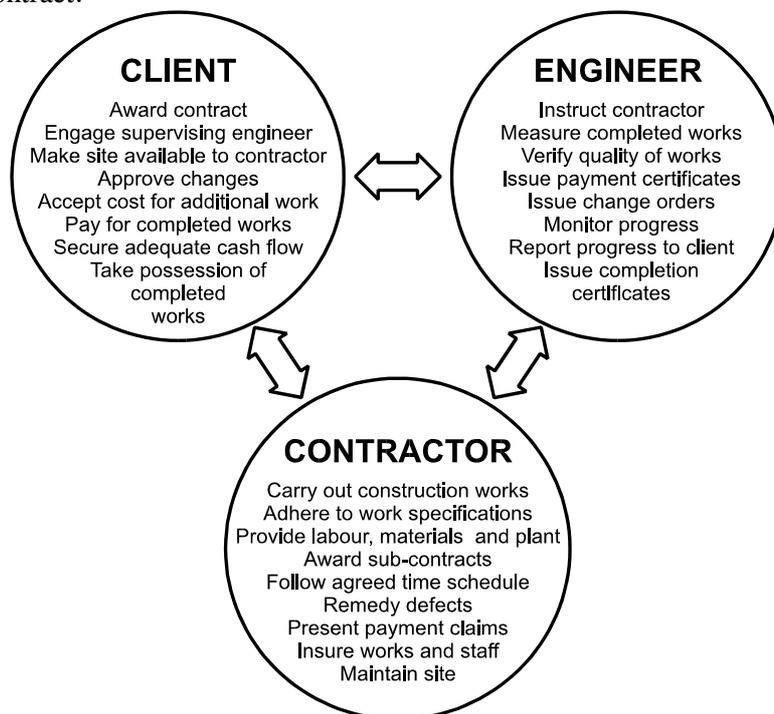
A works contract specifies the achievement of certain outputs, carried out by a contractor against a certain amount of payment provided by the client. The works are normally inspected and verified to meet certain performance criteria by a third party defined as the supervising engineer.

The essential quality expected from the contractor is his/her experience and capacity to effectively mobilise the required inputs of labour, materials and equipment to create the desired outputs in a timely and cost effective manner.

In order for the contractor to operate efficiently, the client prepares a set of contract documents which clearly describes the work to be carried out and the final performance requirements of the completed works. To fully ensure that the contractor adheres to these specifications, the client appoints a supervising engineer which possess the qualifications to monitor the works of the contractor.

With the actual works contracted to an entrepreneur, the supervision and management to the engineer, the client is basically left with the responsibility of making the work site available to the contractor and paying for the works in progress.

The figure below summarises the main responsibilities of the various parties to a works contract.



Payment of Completed Works

The timely payment of the contractors is crucial to their success and ability to survive as healthy commercial institutions. A vital performance criteria of the contracts management is that the contractors are paid within a maximum of one to two weeks after they have submitted an invoice and a payment certificate has been issued by the engineer. Further delays will compromise the contractors' ability to perform its work, and in the long term obstructs the smaller contractors from participating in this market.

When contractors rely on labour-based work methods, late payment of works also restricts the contractor from paying its labour force on time, which in the next turn will have a detrimental effect on the job motivation of the workers and finally lead to reduced production rates.

In public works contracts, commitments resulting from future payments for contracted works needs to be carefully planned. The client needs to ensure that necessary funds are made available on time to avoid any cash flow problems. When dealing with decentralised contracts management, it is important that these funds are transferred to local authorities in time to meet the obligations to the contractors. For these reasons, it is important that

- T the engineer regularly liaise with the local treasurer to ensure that sufficient advance transfers have been made from the central authorities and/or donor agencies, and
- T monitor and oversee that the local authorities process timely payment of the certificates.

10.2 Work Programming

It is the responsibility of the contractor to organise the construction works in such a way that the best use is made of the available labour, materials, tools and equipment. This involves detailed planning of the works, taking the following items into account:

- T in which order work operations and activities should follow, in other words the *construction sequence*,
- T the numbers of workers in each group, i.e. *gang size* and *balancing*,
- T the appropriate mix and balance of labour and equipment,
- T scheduling the provision of equipment, goods and materials,
- T how to motivate the labour, establishing appropriate production targets, using *incentives*, such as task work, and
- T the effective organisation of site supervision and control.

Work programming forms the basis against which progress of works are assessed. Without a work schedule, it is impossible to assess whether the project is moving at the right pace and whether it will be completed at the expected time. A proper work

plan allows the client and the supervising engineer to carry out effective time management of the project as a whole as well as monitor the progress of each individual contractor in a project.

Sequencing of Road Rehabilitation Works:

Road construction works are divided into a number of *operations*, each sub-divided into a series of *activities*, which needs to follow each other in a logical sequence as shown in the table below:

Operation	Activities
Support	site camp, setting out alignment
Site Clearing	detailed setting out, bush clearing, grubbing, tree and boulder removal
Earthwork	excavation and filling, spreading and levelling, drainage, embankments and camber formation
Compaction	watering, compacting and final levelling of earth works
Structures	drifts, culverts and bridges
Gravelling	excavation and transport of gravel, un-loading, spreading, watering and compaction
Erosion Protection	Stone pitching, grass planting, etc.

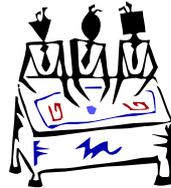
When commencing on a new project, it is important to stagger the above operations, allowing approximately a week before starting the next operation. This will also allow the supervisor to organise the work properly and give basic instructions and training to newly recruited workers. Normally, each activity is carried out by a separate team. If the activities are too close to each other, the work might be disrupted (e.g. an excavation works might have to wait for the clearing activity to finish). On the other hand, when activities are spaced too far apart, the length to supervise may become unnecessarily long.

Of particular importance is that efficient work programming provides an early warning in cases where work progress is faltering and starting to lag behind schedule. It is then possible for the project management to intervene at an early stage to rectify the situation to ensure that original deadlines are being met.

Work programmes need to be agreed to by the contractor and the supervising engineer. When the contractor request for deviations from the established plans, it is important that the supervising engineer is informed as soon as possible. For minor changes to a work schedule, the issues are entirely dealt with by the engineer and the contractor, however, when major changes are necessary it would be prudent also to inform the client.

Site Meetings

In order to ensure a good working relationship between the contractor and the supervising engineer, it is common practice to arrange regular site meetings between these two parties during the course of a contract. Often, the conditions of contract will specify how often these meetings are to be carried out and who has the authority to call the meetings. This means that the parties referred to in regards to progress meetings, have a contractual obligation to attend.



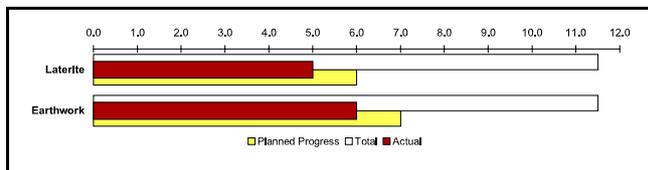
The main purpose of these meetings is to ensure that original work schedules are achieved. Secondly, these meetings act as an important forum in which the contractor and the supervising engineer can discuss and solve technical and managerial problems which may arise during the course of the works.

Written minutes should be maintained on all decisions made during the site meetings. The minutes should include any instructions regarding the volumes of work which deviate from the original bill of quantities, as well as instructions issued relating to improved methods of construction, quality, replacement of staff, changes in work programme, etc. During the next meeting, it is then important that the instructions issued and agreements made during the previous site meeting are carefully reviewed before new decisions are made.

Time Management

Scheduling of works is best described through graphical presentations such as bar charts and time-location diagrams. Bar charts are often applied for structural works, while road works is better described with time-location charts. Progress of works

		Total Quant.		1999												Percent
	Unit	Plan	Actual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Compl.
Earthwork	km	11,5	6,0	Plan	0,5	1,0	1,5	2,0	2,0	1,5	1,5	2,5				52
				Actual	0,5	1,0	1,5	2,0	1,0							
Laterite	km	11,5	5,0	Plan				2,0	4,0	2,0		1,5	1,0	1,0	43	
				Actual				2,0	3,0							
Cumulative Up to This Month																Percent
		Plan	Actual													Progress
Earthwork	km	7	6	Plan	0,5	1,5	3,0	5,0	7,0	8,5	10,0	11,5			86	
				Actual	0,5	1,5	3,0	5,0	5,0							
Laterite	km	6	5	Plan				2,0	6,0	6,0		9,5	10,5	11,5	83	
				Actual				2,0	5,0							



can also be described by defining milestones at which particular activities should be completed and others reaching a certain percentage completion. Each of the methods have their strength and weaknesses and for this reason often used in combination with each other.

Preparing a work programme is the initial activity in the time management process. Once works commence, it is important that progress is compared with the original work schedule throughout the course of the contract. The third activity is to continuously assess the validity of the original work plan. When changes and deviations occur, there may be a demand to revise the original plan and accommodate decisions relating to change of contents and schedule of works.

Work programmes need to be updated at least on a monthly basis, thus allowing the project management to incorporate the schedules of individual contracts in the overall progress plans for a project or a larger programme.

Equally, the project management needs to inform all the players in a project about work plan revisions. The contractor needs to inform his/her site supervisory staff about the new decisions and equally important discuss how this affects their daily work, and how the new targets can best be achieved.

Supply of Materials

One of the basic concepts of contracting is that in addition to carrying out the construction works, the contractor is also in charge of supplying materials to the work site. Work stoppage is very often caused by delays in provision of materials to site, and for this reason, the client will still be interested in assuring that goods and materials are supplied on time.

In some cases, the client may decide to take responsibility for certain material supplies. For example, when contractors have a limited financial capacity and the client do not wish to provide any cash advance, the alternative may be to assist the contractor by providing the materials and/or equipment. Equally, the client may decide to issue a separate contract for the supply of certain materials (i.e. supply of gravel by transport entrepreneurs).

In both cases, it is important that the materials are planned for well in advance of when they are required on site, thereby avoiding any possible delays due to lack of building materials on site.

Inspection of Works

Certain activities will require a specific approval of the engineer before the contractor is allowed to proceed with ensuing activities. A good example is the prior inspections before casting of concrete. Most work specifications would require the supervising engineer to (i) inspect and approve the form works as well as the reinforcement works prior to casting, and (ii) the physical presence of the engineer during the pouring of concrete.



In order for the contractor to proceed with these works at a certain date, it is important that the engineer is notified well in advance so that he/she can make the necessary arrangement enabling him/her to be present at the time requested by the contractor. If the contractor notifies the engineer in the last minute that a site visit is required, this will most likely lead to delays due to other commitments of the engineer. The best solution is for the contractor to plan such dates well in advance, thereby ensuring the engineer's availability, and using such dates as milestones for the work to be completed prior to inspection.

The supervising engineer is often in charge of several contracts at different locations. In order to minimise logistics and effectively allocate his/her working hours, it is equally important for the engineer to receive early notice of such key events at the work sites.

10.3 Time Extensions

The contract specifies the duration of the works and a date at which all works should be completed. If the contractor exceeds this date, he/she is in principle in breach of contract. Some contracts will include clauses which allow the client to exercise penalties on the contractor if the completion of works are delayed. In case of considerable delays of work, the client may decide to terminate the contract. However, there are a number of reasons why contractors are delayed, and many of these are beyond the control of the contractor. Actually, many of these reasons may be traced back to actions or lack of action by the client or his/her representative. Obviously, when the contractor is not to blame for the delays, he/she is entitled to time extensions and possible financial compensation for having to extend the duration of the works.

FIDIC identifies some of the risks of the Clients as follows:

- a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies, within the country,
 - b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war, within the country,
 - c) riot, commotion or disorder by persons other than the Contractor's personnel and other employees, affecting the Site and/or the Works,
 - d) ionizing radiations, or contamination by radio-activity....,
 - e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,
 - f) use or occupation by the Employer of any part of the Works, except as may be specified in the Contract;
 - g) design of any part of the Works by the Employer's personnel or by others for whom the Employer is responsible, and
 - h) any operation of the forces of nature affecting the Site and/or the Works, which was unforeseeable or against which an experienced contractor could not reasonably have been expected to take precautions,
-
- i) physical obstructions or physical conditions other than climatic conditions encountered on the Site during the performance of the Works, which obstructions or conditions were not reasonably foreseeable by an experienced contractor and which the Contractor immediately notified the Employer,

Source: FIDIC Short Form of Contract

Contract documents clearly spell out the division of risks between the contractor and the client. Obviously, any delays caused by risks which are to be borne by the client, would justify a time extension to be granted by the contractor.

It is the responsibility of the supervising engineer to determine whether the contractor should be excused for the delays and be given an extension of time for the completion of works and possibly any compensation for the increase of costs incurred due to the delays of work. At the same time as considering time extensions, the engineer should also consider the possibility of accelerating some of the work activities thereby compensating for any delays incurred.

From the FIDIC clauses, it is interesting to note that the clients

risks are basically limited to typical force majeure events (a-e), damages caused by the client (f), design faults (g), unforeseen natural forces (h) and unexpected adverse conditions which are only discovered after contract award. Any other reasons are risks to be borne by the contractor.

Adverse Weather

Delays are accepted for adverse weather conditions. However, the normal seasonal variations of weather conditions would not be sufficient reason for allowing a time extension. A contractor is expected to take into consideration that during certain

periods of the year, excessive amounts of rainfall will occur which have an impact on certain work activities. Equally, a contractor must take into consideration that during the dry season, it may be necessary to truck water over longer distances than in the rainy season. For such regular variations of the weather, the contractor is actually expected to take the necessary precautions.

Time extensions due to adverse weather are only justified when the weather does not follow the normal patterns, such as prolonged rains beyond the normal duration of the seasons, excessive floods, droughts, hurricanes, etc. These are conditions which the client does not wish the contractor to include as risks when preparing price quotations.

Delay or Revision of Drawings

A common problem in many construction projects, is delays in providing the contractor with all the detailed drawings required for carrying out the works. This is more common when the client decides to carry out changes to the original design and new or revised drawings are required.

When changes occur, it is important that the contractor immediately assesses the need for any time extensions and notifies the client through the engineer, at the same time as dealing with the change orders.

Approval of Works

Before certain work activities can commence, the work specifications will require that preceding works are inspected and approved by the supervising engineer. If the engineer is unable to carry out the inspection at the desired time, the ensuing works will be delayed. If the contractor has given due notice regarding when the inspection is required, such delays are the responsibility of the engineer and the contractor is entitled a time extension. The important issue here is that the contractor have written evidence to prove that the engineer was duly notified. Written minutes from a site meeting or a work plan indicating when the inspection is required would be sufficient evidence to justify an extension.

Unforeseen Works

The conditions of contract would also allow for extension of time due to additional works which are only discovered once a contract has been awarded and works have commenced. Although (i) the client ensured that proper field surveys were carried out prior to awarding the contract, and (ii) the contractor carried out a field inspection during the bidding stage, there may still be aspects of the site conditions which were overseen by both parties. Very often these issues relate to subsurface conditions which are only revealed when excavation works commence, such as unexpectedly shifting soil strata, hidden obstacles such as cables and drainage systems, unforeseen water tables, rock deposits, poor building foundations, etc. Discovery of archaeological artifacts may also delay works.

10.4 Liquidated Damages

Liquidated damages is a penalty or a fine inflicted on the contractor for not completing works as scheduled in a contract. The amount of the fine is intended to compensate the client for losses incurred as a result of late completion of the works. Penalties, when applied, are normally prescribed in a contract on a daily or weekly basis.

Liquidated damages may appear as an attractive way for the client to enforce the timely completion of works by the contractor. However, the full picture is more complicated when it comes to implementing such measures in a real situation where a contractor is delayed.

In many cases, the contractor may claim that the reasons for the delays was beyond the control of the contractor, and for this reason the penalties should not be applied. On this basis, the contractor may even lodge a counter claim for additional compensation.

The delay of works may be due to the contractor facing cash flow problems. If the client has been slow in processing payments, the contractor may once again return the blame to the client. Also, if the reasons cannot be blamed on the client, it would not be effective to impose penalties on a contractor which is already facing financial difficulties. The end result of this may be that the contractor abandons the site - which is not in the interest of any party.

It is evident that contractors see the application of liquidated damages as an additional risk which needs to be seriously considered when preparing a bid proposal. For the client, this often results in higher costs of the works, since all bidders will increase their prices due to the risk of having to pay penalties if works are delayed.

For the above reasons, the application of penalties should be done with great caution. Once again, it is important to revisit the original purpose of liquidated damages as a financial compensation for a delayed start in using the premises under construction. In many cases, it can be argued that alternative arrangements can be sought while a contractor is given additional time to complete the works.

There is also the argument that penalties can only be applied for a certain period since the total amount which can be claimed is often stated as a percentage of the contract. Once this period has been exceeded, the client will have to make other arrangements in order to secure the completion of works within a reasonable time frame. Maybe such action should have been taken at an earlier stage (i.e. reducing the works agreed in the contract, termination of contract, faster processing of payments, accepting additional payments for unforeseen works, etc).

Finally, it should be acknowledged that small contractors, by definition, have a limited financial capacity, and adding the burden of penalties may damage the environment in which they need in order to operate effectively. After all, it is in the interest of the client to have access to a good choice of healthy construction firms which are interested and able to carry out the works.

10.5 Risks and Insurances

Risks as referred to when managing and executing civil works contracts can be divided into three basic categories. There are risks of injury to people engaged by the project or to third persons, damage to property, and financial risks.

The conditions of contract will normally include clauses on how to deal with the most common risks. The contract documents will specify which party have to bear certain types of risks and how the parties to the contract needs to prepare themselves against incidences which may affect work progress. The conditions of contract may require the contractor to take out insurance against some potential risks. In addition, national laws and other regulations may state that insurance is required for certain work activities, equipment and personnel. It is important that all parties to a contract are fully conversant with the insurance requirements prescribed by laws and regulations in a given country.

It is common practice to place all injury or damage risks on the contractor, and make exceptions to this general rule for certain specifically defined risks for which the client have to bear the responsibility. In addition, certain risks related to the design of a project may be portioned to the design consultant/architect.

Injuries

Injuries to employees working for the contractor will normally be addressed by both the contract as well as national legislation. Most contracts will require the contractor to hold insurances protecting the safety of their workers. In addition, national law and other regulations will define any employer's obligation in terms of safety and health on a work site.



Most countries today will cover this issue in their national legislation through specific labour laws which also deal with injuries inflicted on the workforce. This law will hold the employer responsible for taking out an insurance providing compensation for disability and medical treatment for injuries resulting from accidents occurring as a result of employment, regardless of fault - commonly known as worker's compensation.

The contract may also require the contractor to take out a third party insurance which covers any injuries to people which are not employed by the project.

Damages to Property

Unless the client takes possession of the site, i.e. he/she starts using the created assets before completion of works and damages occur for this reason, the contractor is responsible for any damages to the construction site. For this reason, the contract documents will normally require the contractor to take out insurance to cover the completed works as well as all the materials stored on site. Although the created assets on a construction site would legally be regarded as the property of the client,

it is the contractor who is responsible for its safeguarding and would be expected to cover any damages or losses. In order to secure that the contractor meets this obligation, the contract will require the contractor to insure the works and materials.

In addition, it is normal practice to require the contractor to take out a third party insurance which will indemnify the client from any claims due to damages to other property connected to the work site, its access roads or camp site.

National Legislation

National laws and regulations place several demands on the contractor as regards to liability and insurance. These laws and regulations may not necessarily be mentioned in the contract, however, the contractor is still obliged to meet their requirements. If a contract contains any conditions which contravenes with national laws and regulations, those clauses should be ignored and instead the contents of the law should be applied.

Third Party Insurance

As mentioned above, the contractor may be required to hold a general third party insurance for any damages to property or people which may come in contact with the work site. In addition, national laws will normally require a third party insurance on all the vehicles and equipment which are registered for travelling on the public road network.

Workers Compensation

As mentioned above, national legislation in most countries require employers to hold worker's compensation insurance for all of their employees. Although the contract may not necessarily specify this, the client may still demand that the contractor show evidence of holding such insurance.

Special Works

A number of specialised work activities and materials are governed by specific laws and regulations. A good example is rock blasting. This activity would normally require a certified supervisor who is in charge of the works. Also, the works will need to follow certain safety procedures, the explosives will require separate storage and the works will normally only be permitted during certain hours of the day. The contractor is expected to adhere to all such regulations although they are not specifically mentioned in the contract documents.

Safety and Health

Also, it is important that the contractor abides to any laws and regulations relating to security and health on the work site. If such regulations are violated, this may also have an impact on an insurers acceptance of insurance claims in case an accident occurs. If the insurer finds evidence of gross negligence or violations of standard safety regulations, the conditions of the insurance contract may relieve the insurer of any obligations to the insurance contract purchased by the contractor.

It is the responsibility of the contractor to know all the relevant regulations in terms of safety and health on the work site. In addition to installing appropriate measures to protect its workers, the contractor is also responsible for protecting the general

public against any hazards caused by the works both during and after working hours.

Financial Risks

Financial risks relate to potential cost increases due to unforeseen or unexpected changes to the working conditions of the project. In an ad measurement contract, i.e. where the payments are based on a bill of quantities, the client may face a risk of cost increases due to additional volumes of work. When dealing with lump-sum contracts, there is a risk of unforeseen additional work for the contractor for which he/she will not receive any additional payments.

Contractors face a number of other financial risks as well. Having to replace and repair defective works is always a risk encountered by the contractors. This may occur during the course of the contract or during the defects liability period. As with spillage of materials, the contractor needs to ensure that work standards are adhered to and that the workers are fully informed about the performance requirements.



A common problem with public works contracts are the delays in payment of completed works with the result that the contractor will need to find alternative temporary sources of cash to meet payments of materials, equipment and workers. This often means that they have to obtain cash loans or credit, services which are normally rendered for a certain fee, which is difficult to recuperate from the client.

As mentioned earlier, contractors regard liquidated damages a financial risk. Some contracts may demand a performance bond which may be forfeited. Finally, any time extensions will tie up equipment and workers for an extended period of time, leading to additional costs. An extended contract duration will also lead to added overhead costs.

Compensation may be claimed for some of the unexpected works and delays in works, however, the contractor will always have to bear some of these unforeseen costs. In order for the contractor to secure a certain level of income and profits, he/she will need to incorporate these additional costs in the price offers submitted during the bidding stage. If a contractor does not provide for any unforeseen additional costs as discussed in this section, there is a great risk that he/she will end up in a situation not being able to complete the contract.

This is not only an undesirable situation for the contractor, but also for the client. For this reason, it is always important to treat very low bids with great caution, since such offers give little room for unexpected works. They may not necessarily lead to a contractor abandoning the site, however, such contracts may involve frequent requests and negotiations for compensation for additional unforeseen works.

10.6 Reporting and Monitoring

Reporting the progress of works is the final activity in relation to time management planning. A well-designed and functioning reporting system also provides the basis for a transparent and sound management system.

The purposes of a reporting system are to:

- measure efficiency of ongoing works,
- provide a uniform method of collecting production data,
- ensure and control the correct use of funds, machines, materials and labour,
- enable the management to effectively replan and reschedule remaining works,
- identify weak components of the production chain,
- provide reliable information to others about the programme, and
- collect experience data which will form the basis for the planning of future projects.

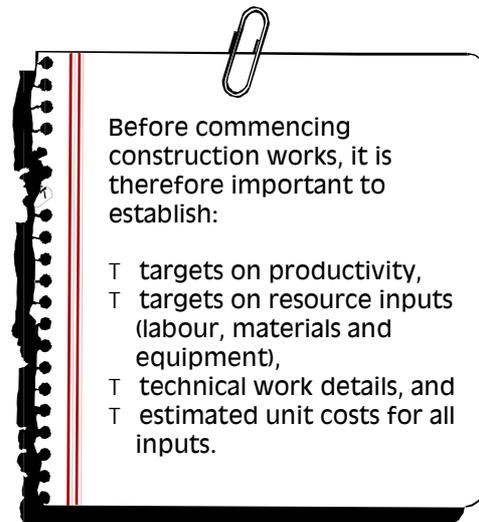
The main purpose of a planning and reporting system is to provide the project with the means by which to compare progress of work against an improved plan. Therefore, there are two parts to the system - planning and reporting.

Plans are prepared for all work to be completed during a certain period, usually covering the duration of the contract and each financial year. The planning work is carried out by the contractor's technical staff, normally including both staff from the head office as well as the site supervisory staff. The work plans of the contractors need to be approved by the supervising engineer to

ensure that they conform to the overall project programme.

Detailed planning data needs to be prepared for each works contract and broken down into each work unit (i.e. work-site, operation, team of workers, etc.). Equally, the plan needs to be broken down into monthly, weekly and daily plans.

With this information as a reference, combined with a good reporting system and procedures, the project management are in the possession of an effective management information system.



Before commencing construction works, it is therefore important to establish:

- T targets on productivity,
- T targets on resource inputs (labour, materials and equipment),
- T technical work details, and
- T estimated unit costs for all inputs.

Basically, a reporting system consists of a set of printed report forms for each type of work, which are filled out at various levels from site level to headquarters levels. Forms for reporting cover the following information:

- | | |
|--------------------------------|------------------|
| Bconstruction progress, | Bstores control, |
| Bvehicle and equipment use, | and |
| Bcost and expenditure control, | Bpersonnel. |

Most reporting systems consist of three levels. Production data, labour attendance, consumption of materials and use of equipment are recorded at site, collated into weekly summaries and further summarised into quarterly, bi-annual and annual reports.

At site level, the data is recorded every day by site supervisory staff of the contractor. Information as regards to construction progress forms the basis for payment claims. Data collected in terms of use of equipment, materials and personnel is for the internal use of the contractor to control costs.

An important factor in a reporting system is that all parties are thoroughly instructed in how report forms are used and that information is recorded in a uniform manner, thereby enabling project management to compare and evaluate the results from the various work sites and contracts.

(i) Daily Work Progress

The reporting of physical works starts at site where the foremen record daily work progress and inputs of labour, materials and equipment for each work activity. This information should then be verified by the site manager. When weekly summaries are prepared, the physical work progress reports are reconciled with the information from the muster rolls. Payment of works carried out by contractors are based on physical work progress reports and visual inspection to verify that the reported progress is in good order and the quantities recorded are correct.

(ii) Labour Attendance

The reporting of labour attendance starts on site through the daily recording of workers attendance in the muster roll. Every week or at the end of each month, depending on how frequent the programme wishes to carry out wage payments, the muster roll is reconciled to calculate the wages for the workers. This exercise determines the exact amount of payments required at each site and for each worker.

(iii) Use of Tools, Equipment and Materials

All usage and consumption of tools, equipment and materials needs to be carefully controlled to ensure its proper usage.

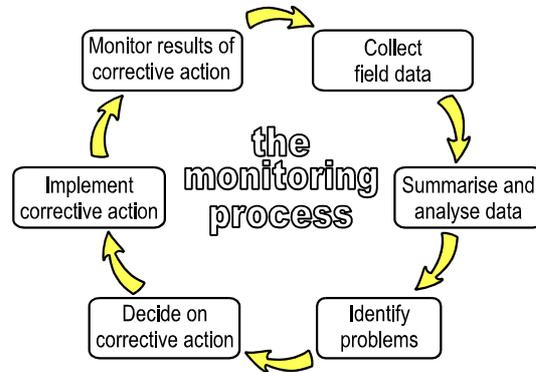
All issue of tools to the workers should be recorded in a tools issue form. The workers should be informed that they are held personally responsible for the items received until they are returned to the store keeper. Defect or worn-out tools should be returned to the stores immediately for repairs or replacement.

Each piece of construction equipment, including project vehicles should have a log-book in which all usage is recorded together with consumption of fuel, lubricants and spare parts.

Materials are recorded in stores record forms when released from the site store.

Monitoring Progress

In order to effectively evaluate the data recorded, the engineers and supervisors must be aware of the productivity and performance targets. These targets are set during the planning process.



Apart from regular field inspections, the most important monitoring activity is the desk review. Once a month, the site manager needs to carefully analyse the information provided from the work site.

When actual performance is different from the plans, it is important to investigate the possible implications of targets not being achieved, especially cost and time

over-runs. Findings should be discussed with subordinate staff in order to decide on the corrective action to be applied. The corrective measures decided upon will only be effective if they are understood and agreed upon, with those involved in carrying them out.

Management staff must learn to concentrate on the failings in performance that will have a significant impact on overall targets and objectives, and not waste time on minor differences that will have little effect on work progress.

Cost Control

Monitoring costs is necessary to avoid cost over-runs and to prevent unauthorised expenditure. Wasteful and unplanned over-expenditure reduces the amount of productive work possible.

Special attention must be paid to overhead costs (supervision, administration, transportation, etc.). In many cases, the percentage of funds spent on overheads are too high. When production is running at a low level, savings in overhead costs should be looked for (such as reduction of administrative staff, rationalisation of vehicle use and sharing of offices).

Vehicle operation is expensive and should therefore be carefully monitored and controlled. High fuel consumption, frequent repair costs and vehicle misuse are the main causes of over-expenditure on vehicles.

As with performance monitoring, all relevant information must be carefully scrutinised when costs are monitored. For example, the proper utilisation of laterite hauling equipment cannot be found from the vehicle cost reports alone. It is necessary to cross check laterite excavation outputs, haulage distances and equipment availability for the same period in order to get a clear picture.



Chapter 11

Changes

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11.1 General

Construction projects are complex undertakings. The works must be designed in accordance with applicable codes and standards, culminating in drawings and specifications that describe the work in sufficient detail for satisfactory accomplishment in the field. Building the works involves many skills, materials, equipment, work methods and literally hundreds of different operations. To some degree, every project is unique and no two jobs are ever alike. The project management through its designers and contractors brings together all the diverse elements of and inputs to the construction process into a single coordinated effort.

It is standard practice that a contract gives the client/employer the right to make changes in the work after the contract has been signed and during the construction period. Such changes may involve additions to or deletions from the contract, modifications of the work, changes in work methods, changes in contract time requirements, etc. The contractor is not to proceed with changes until they have been authorised in writing by the owner or the Engineer. Disputes and claims can and do stem from a wide variety of origins. Disagreements arise between the contractor and the client, or the Engineer, concerning the interpretation of time, damages for client-directed acceleration, costs occasioned by client caused delays, defective drawings or specifications, changed conditions and similar matters that often affect contract time or cost. Every effort should be made by the client and the contractor to resolve claims, issues and problems as quickly as possible in an amiable atmosphere in order to minimise costly delays.

Despite the fact that engineers spend a considerable amount of time on the design and surveys for a specific project, there is very often need for modifications once the works have commenced. Some of these modifications are due to items which were forgotten or not considered during the design stage, and some changes are due to the client changing the design during the construction period. Other changes to the anticipated works occur when site conditions appear to be different from the original impression given during the surveys before works commenced.

Although it is desirable to keep changes at a minimum, it is impossible to avoid them all. Eliminating all modifications would require extensive preparations in terms of surveying and design, which in most cases is impossible due to time and resource constraints.

To address this issue, most contracts contain special clauses which specify procedures to follow when changes are made to the agreed works.

Since changes do occur on most construction projects, the parties to a contract must be fully informed about the specific terms under which a contract allows for modifications to the agreed work.

11.2 Clauses Governing Changes

Normally, a contract will include clauses on modification which basically states that:

- the client have the right to make changes as long as it is within the general scope of the contract,
- the contractor is required to carry out the work generated by the change,
- the contractor should not initiate any changes before receiving instructions from the client or his/her representative,
- the instructions to carry out the modified works shall be in writing and signed by the client or his/her representative,
- any adjustment to the contract price and contract duration will be considered according to already established and agreed procedures.

When modifications are required, either due to unforeseen site conditions or changes ordered by the client, a change order needs to be submitted to the contractor. In a sense, a change order is a mini-contract to perform a specific item of work. In reality, a change order is an adjustment made to the original contract, as such it must satisfy all the prerequisites of the contract. This implies that all the general obligations agreed to by the two parties to the contract will also apply to the additional work.

If the change has no impact on the duration of the contract or the original contract value, it can be referred to as a field change. Field changes can often be authorised by personnel at the site without direct approval from the client. Field changes are typically minor and to facilitate progress, the approval of these changes are given by the client's representative on site.

11.3 Major Changes

Although contracts contain appropriate clauses to deal with changes, there are however limitations to the extent to which modifications of a contract can be made. Changes which go beyond the scope of the contract are not covered by the change clauses and should be avoided.

If a contractor is requested to carry out major changes which is considered beyond the scope of the contract, this can be considered as a breach of the contract (by the client). The reason for this is that when the modifications totally alter the contents and scope of a contract, the original contract has been supplanted by a different job.

On private contracts such changes are not a problem if both parties agree to the terms of those changes. However, on public works contracts this issue is more serious. Even if the contractor agrees to these changes, there are other considerations in terms of transparency and fair competition. The rationale here is that when a modification is not within the scope of the original contract, the change constitutes a new contract and should be awarded through competitive bidding.

The definition of major changes which are beyond the scope of a contract are normally related to (i) an alteration in which the identity of the project is significantly changed, and/or (ii) when work methods are substantially changed.

For example, increasing the size of a bridge project by changing the design from a single span bridge to a multi-span bridge, and introducing piling works which was not envisaged in the original contract, would be a major change beyond the scope of the original contract. Although current practice in modifications allow for substantial increases of volumes of work, this specific change involves (i) substantial changes to the project identity and (ii) the introduction of new work methods.



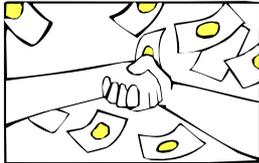
On a public works project, the issue of fair competition will then become an issue, since other contractors were not invited to bid on this new type of project. Finally, the current contractor who was awarded the original contract may not be the best firm, or in a worst situation scenario may not be qualified to carry out this type of works. The contractor may lack the financial and technical capacity to carry out this type of works, as well as lacking the necessary equipment to carry the newly introduced work (i.e. the piling works).

11.4 Change Orders

Change clauses often state that payment of works will only be carried out for changes which are specifically ordered by the client or the client's representative. If the contractor initiates any changes without prior consultation and approval from the engineer, there is a fair chance that the client will refuse payments for this work.

Whether or not it is stated in the contract, most clients will only approve payments when the changes were ordered in writing. The reason for this is that all payments

need to be justified with supporting evidence. When no changes are made to the contracted works, then the contract itself provides sufficient justification of the expenses to the client. When changes are made, which are not covered by the existing contract, the accounting section will normally object to releasing payments despite the contractor submitting a detailed invoice describing the works carried out.



In such cases, the pay officer will need to seek clarification from the supervising engineer to establish whether any changes were ordered. If the engineer confirms that changes were agreed, then payments can go ahead. If not, the contractor is at risk of not receiving payments for this work, also in a case where an oral agreement was made.

Change orders come in many fashions. They can be communicated in letters, notices, revised drawings or specifications, notations on old drawings, minutes of site meetings, field records and daily reports. The most common practice is still through verbal instructions. If these change orders have financial implications, it is important that they are confirmed in writing before the contractor commence on the modified works.

When changes occur in the form of either written or verbal instructions, it is good practice for the contractor to inform the client or its representative in writing whenever additional compensation will be sought from the orders which are considered as changes to the contract.

World Bank Regulations

Changes are referred to in the procurement guidelines of the Bank under section 3.7 Direct Contracting where it states that:

.... An existing contract for goods or works, awarded in accordance with procedures acceptable to the Bank, may be extended for additional goods or works of a similar nature. The Bank shall be satisfied in such cases that no advantage could be obtained by further competition and that the prices on the extended contract are reasonable. Provisions for such an extension, if considered likely in advance, shall be included in the original contract....

Also, in the General Conditions of Contract it states that:

40.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in Sub-Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.

40.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.
Source: Standard Bidding Documents, Procurement of Works - Smaller Contracts, January 1995

FIDIC

The Short Form of Contract prepared by FIDIC states that the Employer may instruct variations, which are valued according to the following procedures:

- "(a) at a lump sum price agreed between the Parties, or
- (b) where appropriate, at rates in the Contract, or
- (c) in the absence of appropriate rates, the rates in the Contract shall be used as the basis for valuation, or failing which
- (d) at appropriate new rates, as may be agreed or which the Employer considers appropriate, or
- (e) if the Employer so instructs, at daywork rates set out in the Appendix for which the Contractor shall keep records of hours of labour and Contractor's Equipment, and of Materials used."

11.5 Authority to Order Changes

Since changes to a contract may result in additional costs to a project, most contracts contain specific clauses indicating who are authorised to take these decisions. These decisions are most often regulated in the conditions of contract. In most construction contracts, the engineer acts as the client's representative, clearing payment certificates, rejecting inferior work by the contractor, interpreting drawings and with certain limitations have the authority to order or approve changes to the works as specified in the contract.

World Bank Regulations

In the general conditions of contract used by the World Bank, a Project Manager is appointed to represent the client. He/she is responsible for supervising the execution of the works and administering the contract. The authority vested in the project manager as related to changes is described in the following excerpts from the conditions of contract:

- 38.1 The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.
- 38.2 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.
- 44.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.

FIDIC

The FIDIC Short Form Contract leaves the authority to carry out variations with the client. The reason for this is that this particular contract does not make any specific reference to a supervising engineer. Although it accommodates the common practice of appointing an engineer as the client's representative, this contract generally refers to the client in terms of managing and interacting with the contractor.

11.6 Contractors Reaction to Change Orders



Whenever a directive for a change is given to the contractor, the contractor needs to ask the following questions before performing:



- T Is this within the scope of the contract?
- T Has there been proper authorisation?
- T Is the directive in a proper form?
- T If the work is carried out, will the client pay for it?

If the contractor feels that these questions can be answered in his/her favour, prompt written notice should be issued to the client, concerning the cost impact of the change. Only when the costs of the additional work has been agreed by both parties (i.e. methods of measurement, unit rates and total cost price), should the contractor commence on such works. By simply performing the work and later seeking compensation may be a poor strategy which may lead to conflicts and jeopardise a good relationship between the client and the contractor.

11.7 Changing Site Conditions

In an ideal situation, when a contract is signed, all the site conditions are clearly and correctly documented and understood by both parties. The site conditions are normally stated in the plans, drawings work specifications and any addenda. With this information, one would assume that the project can be constructed in the manner agreed in the contract. This of course is based on the assumption that the conditions at the project location essentially have been accurately described and remains unchanged until the works commence. Unfortunately, this is not always the case - the actual conditions may appear different when works commence. When this occurs, the cost of construction may increase or decrease, and the contract needs to be modified accordingly.

The differences in site conditions are most commonly related to subsurface conditions. It may be problems related to high a water table, unsuitable soils for foundations, rock or in the case of quarries, the soils where in insufficient amounts at the required quality.

Example:

The client has carried out field tests of a new gravel (laterite) quarry and found through test digging that the materials are suitable for gravel road surfacing. After the contractor commence works, it becomes evident that this specific quarry will not provide sufficient materials at the defined quality. The client therefore decides to utilise an alternative quarry, however, at a location which extends the hauling distance. At this stage there is a need for negotiating a new price for the transport of the materials adopting the

The best way of avoiding a situation where unforeseen changes in site conditions occur, is to carry out proper and detailed surveys before a contract is advertised.

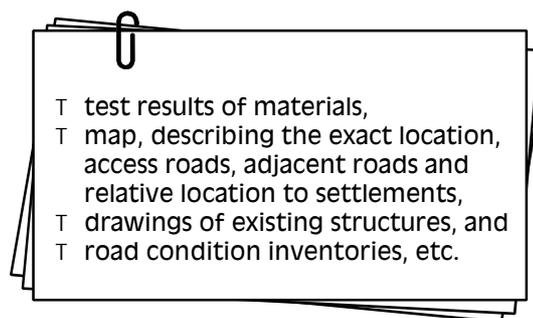
Alternatively, the client may shift the risk of changing conditions to the contractor, in order to secure that the project does not exceed the agreed contract amount. The draw-back here is however, that in such cases the contractors will most probably increase their bid prices to cover any eventualities and safeguard themselves against any unforeseen costs.

In most cases, it would be advisable for the client to bear this risk. This will lower the bid prices obtained from the contractors, or avoid an unwary contractor to default on a contract if insufficient funds have been allowed for in the bid to cover such contingencies. Instead, it is better for the client to include a contingency line in the project budget to cover such costs.

The World Bank contract documents relate to such changed site conditions under their clauses for Compensation (see Section 11.4). Here again, it is important that the contractor (i) notifies the client and (ii) agrees on a price for any additional or changed work before continuing works.

11.8 Pre-Bid Site Investigations

Although the client may wish to take the risk and related costs for unforeseen site conditions, this does not relieve the contractor from all responsibilities related to the real conditions on a project site. In the bidding documents the client will normally provide some information related to the project site. This can be in the form of:



Although this information has been meticulously prepared and provides a good presentation of the actual situation, it is normally expected that the contractor also carries out a site inspection before he/she submits a bid. The reason for this is simple. It is important for the contractor to make his/her own judgement of the site conditions and based on his/her personal impression assess the project site.

Outdated Road Condition Inventories:

A common problem encountered by contractors is the issue of out-dated road condition inventories submitted as part of the bidding documents for road rehabilitation works. During the process of carrying out a bid competition, the condition of the road may deteriorate further, which is not reflected in the final contract documents. If the contract is based on Bill of Quantities, the changed conditions is covered by variations to the quantities, using the agreed unit rates. However, the overall site conditions may also have changed with the result of increased costs for several work activities. For this reason, it is therefore important that the contractor inspects the road before submitting a bid to establish the differences between the recorded road condition and the real situation.

For example, an access road may be in very poor condition. Normally, the client would expect the contractor to provide and maintain all access to the site. If the contractor overestimates the quality of an access road, he may encounter additional expenses which the client will be unwilling to pay for. Equally, the quality of roads leading to the site may have a severe cost impact on the transport of materials. It will be the duty of the contractor to adequately cater for such items in the submitted bid.

A similar situation would relate to standing water during the rainy season. The client would expect the contractor to accommodate the additional costs related to carrying out works during a period when rains and wet conditions are expected. It is therefore important for the contractor to visit site and examine the impact rainy weather may have on the site. It is only in the case of extreme weather (i.e. floods, storms, etc) that the client will accept additional claims related to the works.

As a general rule, a differing site condition is typically one that was not reasonably foreseeable based on close examination of the bidding documents and the project site.



Chapter 12

Payment of Works

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12.1 General

Any payment made to the contractor should be based on completed works which have been measured and approved by the engineer and deemed compliant to the quality standards defined by the contract. Under no circumstances shall the contractor be paid for works which have not been completed or have been carried out to sub-standard quality.

How and when payments are made are based on the conditions of a particular contract. Civil works contracts are often based on a bill of quantities where each category of works are specified with a unit price offered by the contractor and an estimated volume of works or materials. Smaller works would normally be awarded using lump-sum contracts where the payment procedures are simplified.



Payment of completed works is based on inspection and approval by the engineer. The engineer is responsible for measuring the exact quantities of completed works and verifying that the quality of materials and workmanship conforms to the technical specifications. The approved volumes of work are documented in a payment certificate which the engineer submits to the client, basically stating that a certain amount of works have been completed, and is now due for payment.

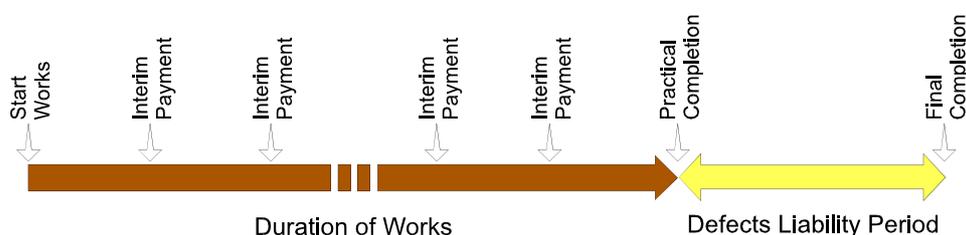
This endorsement of the works acts as the sole justification for the client to pay the contractor. There is no need for any additional verification before payments are processed. This process needs to be swift and free from bureaucratic red tape in order to avoid delays in paying the contractor. Processing of a payment certificate should not take more than one to two weeks.

Remember:

Timely and swift processing of payment for works carried out by small-scale contractors is a crucial issue in terms of providing a conducive environment in which local entrepreneurs can survive and prosper. If payments are delayed, these firms will easily encounter cash-flow problems which may force them to slow down or stop works. When contractors are applying labour-based work methods, this issue is even more important. Without timely payments, the contractor will not be in a position to pay the labour force on time, which in the next turn will lead to poor morale among the workers, resulting in lowered production rates and lacking labour attendance.

The detailed procedures adopted in terms of cash flow from central level to local authorities and further on to the payments to the contractors, need to be closely monitored for its efficiency. The timely payment of the contractors is crucial to their success and ability to operate using labour-based methods. A vital performance criteria of the payment procedures is that the contractors are paid within a maximum of one to two weeks after they have submitted an invoice.

There are three different types of payment certificates issued during the course of a contract. The Interim Payment Certificate is used for partial payments during the course of works implementation. The number of interim payment certificates to be issued depends on the duration of the contract and the payment schedule as agreed to in the conditions of contract. When all works have been completed, the final remaining payment will be processed with the Certificate of Practical Completion. This will also be the start of the Defects Liability Period. At the end of the Defects Liability Period and after the contractor has completed any remedial works, the Final Certificate of Completion is issued.

**Payment Schedule**

The schedule of payments are important for the contractor, and the specific schedule of a particular contract needs to be carefully studied by the contractor already during the bidding stage. Some contracts will only accept payments upon satisfactory completion of all works, while other contracts may be more lenient providing intermittent payments during the course of the contract. However, it is clear that the payment schedule will dictate how much of the works and materials the contractor will need to advance from his/her own pocket during the construction period.

The payment schedule is normally found in the general conditions of the contract, and most commonly in the appendix to the conditions (or contract data). For larger works, it is common to establish monthly payments of works. This implies that the contractor will request the engineer to visit the work site at the end of each month to measure the amount of completed works since the previous month and prepare a payment certificate on this basis.

For smaller contracts the client may decide to limit the number of payment certificates. For example, a lump sum contract may prescribe that the first payment will be made when 50 percent of the works are complete, and the second payment only on completion of all works.

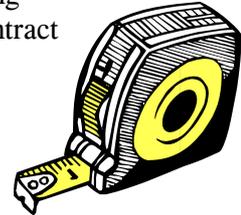
Minimum Amount of Interim Certificate

To avoid processing very small amounts in the interim certificates, the client may decide to set a minimum limit to which it is willing to accept a certificate for payment. This means that if a contractor has had very little progress during a period since last time he/she was paid, the client will not process any payments. It is important to note that when a contract includes a minimum amount for the interim certificates, a contractor may not necessarily be paid every month although this is stated in the contract.

12.2 Measurement of Works

It is a common misconception among contractors that the client will guarantee payments to an amount equivalent to the prices indicated under each item in the Bill of Quantities. During the course of works implementation, it is expected that deviations will occur from the originally estimated quantities. *Therefore, payments to the contractor are based on the actual measured quantities - not the amounts as listed in the Bill of Quantities.* Variations to the estimated quantities is a common feature in construction contracts and for this reason, the original quantities should be treated merely as an estimate and a basis for the bidding competition.

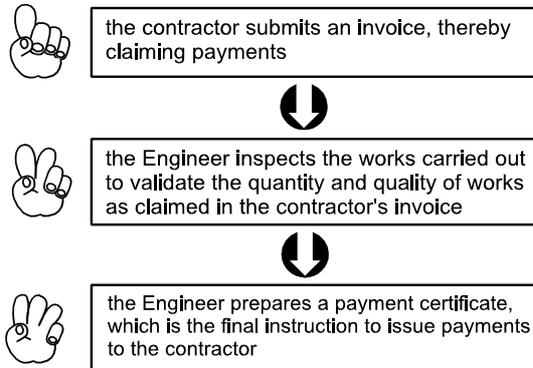
Payments are to some extent also performance based when dealing with lump-sum contracts. The basic principle of a lump-sum contract is that it states that the contractor will complete a certain service, normally producing a specific end product, for which the client will pay a fixed amount no matter what inputs are required. However, the conditions of contract will normally prescribe a schedule of payments, indicating when the contractor should be paid.



The timing of the payments are then based on the progress of works, i.e. first payment to be made after 30 percent of works completed, second payment after 60 percent, etc. Alternatively, the payment schedule may prescribe, payments at various stages of the construction, such as after foundations have been completed, roofing completed, etc. At these milestones, the engineer needs to make a rough estimation of how much work has been completed and pay the contractor on this basis.

Once again, before the contractor carries out any works which deviates from the bill of quantities and drawings, it is necessary to obtain written approval for such works from the engineer. Payment should not be approved for any additional works which have not received prior written approval from the supervising engineer.

Payment of works completed under a civil works contract is carried out according to the following three basic steps:



Although the above figure describes the principle method of preparing payment certificates, there are several variations in practice. A very common procedure is to omit the invoice where the contractor claims payments. Instead, the contractor and the engineer, jointly prepares the list of quantities of completed works which forms the basis for the payment certificate.

For lump-sum contracts, measurement are usually less time-consuming, since there is no need to verify quantities in detail. However, it is still important to check that the works are being carried out to the technical standards as prescribed by the contract as well as adhering to standard building practices and workmanship.

Measuring completed works is a common cause of disputes between the contractor and the client. For this reason, the method of measurement is often described in the works specifications. More important, is that the volumes of work due for payment

is recorded using the unit of measurement stated in the bill of quantities or activity schedule. If the contract documents have been properly prepared, the units of measurement in the bill of quantities should correspond to the ones mentioned in the works specifications.

Item	Description	Unit	Quantity	Rate	Amount
1.1	Setting out alignment	m	3,000	0.12	360.00
1.2	Clear site of grass and light bush	m ²	24,000	0.01	240.00
1.3	Grubbing and stump removal	m ²	5,600	0.02	112.00
1.4	Tree felling and removal	no.	75	4.50	337.50
Sub-Total					1,049.50
2.1	Excavate side drain to form camber	m ³	810	1.10	891.00
2.2	Construct scour checks	no.	300	0.20	
2.3	Construct mitre and catch-water drains	m	281		

prescribed units of measurement →

The units of measurement need to be strictly adhered to, when the contract has been agreed on the basis of unit rates.

When applying the established units of measurement, there is never any doubt as to the rates at which payments are based on. If new units of measurement are introduced, the client will need to negotiate new rates with the contractor.

Any introduction of new units or methods of measuring works during the course of the contract could easily be construed as a major change to the contract. Unless the client has explicitly agreed to this and negotiated new rates with the contractor, it may compromise the transparency of the contracts management.

Also, with lump-sum contracts, it is important to adhere to the payment schedule prescribed in the conditions of contract. Any changes to these conditions may lead to complaints from other firms, with accusations that the contractor was given more favourable conditions once the contract had been awarded - and that the selected bidder was aware of this during the bid competition.

12.3 Interim Payment Certificate for Road Works

The interim payment certificate acts as a standardised statement from the supervising engineer to the client that measured works which have been completed since the previous payment have been satisfactory carried out according to the drawings and work specifications and are now due for payments.

It is the responsibility of the supervising engineer to prepare this certificate. It should only be prepared after the works for which the contractor claims have been inspected on site and found in good order, conforms to prescribed quality, and have actually been carried out.

Interim certificates are prepared on the request of the contractor, i.e. upon the receipt of a claim. However, a certificate should only be prepared if it conforms to the agreed payment schedule and the minimum amount mentioned in the condition of contact.

A new payment certificate is prepared for each payment due to the contractor. The certificate acts as the payment justification, and once it is issued, the client will need to release payments as soon as possible. When managing local contractors, the processing of payments should not take more than one to two weeks after the certificate has been prepared by the engineer.

	% Completed	Amount																									
1. Measured Works:	23	14,657.54																									
2. Deductions																											
Less 15% Retention	(1) x 0.15	1,099.32																									
Other: <u>repayment of tools</u>		1,500.00																									
	(specify)																										
3. Total Amount Due:	(1)-(2)	12,058.22																									
4. Details of previous payments																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Cert No.</th> <th>Date</th> <th>% Completion</th> <th>Measured Works</th> <th>Retention</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>15.07.01</td> <td>14</td> <td>9,015.36</td> <td>1352.304</td> </tr> <tr> <td>2</td> <td>15.8.01</td> <td>20</td> <td>12,853.25</td> <td>1927.988</td> </tr> <tr> <td>3</td> <td>16.9.01</td> <td>21</td> <td>13,476.87</td> <td>2021.531</td> </tr> <tr> <td colspan="3">Total Previous Payments</td> <td>35,345.48</td> <td>5301.822</td> </tr> </tbody> </table>	Cert No.	Date	% Completion	Measured Works	Retention	1	15.07.01	14	9,015.36	1352.304	2	15.8.01	20	12,853.25	1927.988	3	16.9.01	21	13,476.87	2021.531	Total Previous Payments			35,345.48	5301.822		
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1	15.07.01	14	9,015.36	1352.304																							
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3	16.9.01	21	13,476.87	2021.531																							
Total Previous Payments			35,345.48	5301.822																							
5. Total Contract Value		63,007.18																									
6. Contract Balance	(5)-(4)-(3)	15,603.48																									

The sample payment certificate shows the minimum information which is required in terms of advising the client to process payments to a contractor. Basically, the new information provided is the total value of the measured works (1), amount of deductions (2), and the exact amount to be paid to the contractor (3). In addition, it is common practice to provide the client with information related to history of payments (4) and balance of payments as related to the total contract value (5 & 6).

Actual payments to the contractor should be issued by cheque in favour of the contracting firm or its authorised representative or by direct bank transfer.

It is expected that most contractors will carry out their financial transactions through the services of a bank. Only in cases where there is no access to banking services should the contractor be paid in cash.

Payment certificates form part of the financial system for a project, acting as supporting evidence for expenditures against specific budget items. Therefore, they need to be filed according to established accounting procedures and are subject to the regular audits.



Payment Breakdown

The interim certificate would normally not contain details of which bill items the contractor has completed and are due for payments. Its main purpose is to advise the client that payments at a certain total amount is now due to the contractor. In order to monitor the payments made against each of the items in a bill of quantity, the engineer will need to keep track of more detailed information as regards to work progress and towards which bill items works have been charged.

A Payment Breakdown contains the details for the calculation of interim payments due to the contractor. When the contractor requests payments for completed works, the supervising engineer visits the site and measures the works carried out since the previous payment. The measured works is then entered into a form against each of the work items in the bill of quantities. For comparison, the accumulated payments of previously issued certificates are also recorded in this form, thereby enabling an effective cost control during the course of the works.

Once works have been measured and found in good order, the completed quantities of work under each bill item are entered into the Payment Breakdown. The total amount from the Payment Breakdown is then transferred to the payment certificate. The sample below shows a payment breakdown which forms the basis for the sample payment certificate presented previously.

PAYMENT BREAKDOWN									
Item	Description	Bill of Quantities				Previous Payments		Current Payment	
		Unit	Qty	Rate	Total Amount	Qty	Amount	Qty	Amount
1.1	Setting out alignment	m	15,000	0.12	1,800.00	9,000	1,080.00	6,000	720.00
1.2	Clear site of grass and light bush	m ²	120,000	0.01	1,200.00	72,000	720.00	48,000	480.00
1.3	Grubbing and stump removal	m ²	28,000	0.02	560.00	16,800	336.00	11,200	224.00
1.4	Tree felling and removal	no.	375	4.50	1,687.50	260	1,170.00	115	517.50
	Sub-Total				5,247.50		3,306.00		1,941.50
2.1	Break and remove boulders	m ³	250	2.74	685.00	244	668.56		
2.2	Excavate side drain to form camber	m ³	6,200	1.07	6,634.00	4,960	5,307.20	1,240	1,326.80
2.3	Excavate, haul and compact soils	m ³	31,750	1.12	35,560.00	22,225	24,892.00	9,525	10,668.00
2.4	Construct scour checks	no.	1,850	0.22	407.00			437	96.14
2.5	Construct mitre and catch-water drains	m	1,924	0.87	1,673.88	1,347	1,171.72	577	502.16
2.6	Shape and compact gravel	m ³	11,700	0.85	9,991.80				
	Sub-Total				54,951.68		32,039.48		12,593.10
3.1	Turfing	m ²	30,000	0.09	2,700.00			1,228	110.52
3.2	Tree planting	no.	1,200	0.09	108.00			138	12.42
	Sub-Total				2,808.00		0.00		122.94
GRAND TOTAL					63,007.18	35,345.48		14,657.54	

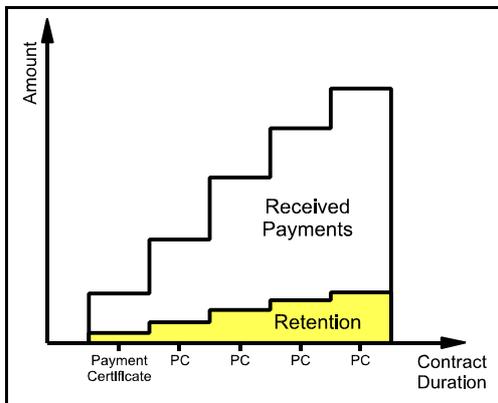
12.4 Retention

Retention money is an additional security which the client may wish to apply to a particular contract. As opposed to bid and performance securities, the retention money requires no action or financial outlays from the contractor. It is merely a procedure in which the client retains a certain amount (normally a percentage) of the interim payments due to the contractor until all works have been satisfactory completed.

The main purpose of the retention money is to safeguard the client against any default work which the contractor may not be willing to rectify. If substandard works are discovered during the course of the contract (including the defects liability period), and the contractor refuses carry out the required repairs, the client may decide to use the retention money to correct the faulty works. The client is then free to use a different contractor to carry out this remedial work.

If the contractor repairs all defaults identified by the engineer within the contract period, then the client is obliged to release all the retention money at the end of the contract.

Although the intention of retention money is to take care of remedial works, it also acts as an additional performance security for the client. Since the retention money is calculated on the basis of invoiced works, the amount of retention will increase as



work progresses. This obviously acts as an additional motivation for the contractor to complete works on time so the retention can be released. In other words, retention may have the same effect as a performance bond.

Retention money is deducted from the total amount due to a contractor in the interim payment certificates. For most contracts, it is recommended that 10 to 15 percent retention is applied. If the client wish to apply retention, the exact amount is stated in the conditions of contract. This percentage is deducted from each of the interim payment certificates (not the total contract value). By

subtracting the deducted retention from the invoiced amount, the final amount due for payment is calculated. This net figure is then used to record the expenditure in the project accounts. The retention money is at the same time recorded as a financial commitment, i.e. as an expense which is expected to occur in the near future.

Remember that retention monies are always deducted from the amount due for payment to the contractor according to the amount of works completed since the previous payment. Retention on interim payments should *not* be calculated from the total contract value.



Finally, for monitoring purposes, the retention money together with the actual payment is recorded in the contracts register, together with the total contract value and the remaining contract balance.

12.5 Certificate of Practical Completion of Road Works

The certificate of practical completion is used for processing payment for the last remaining works at the end of the contract. Since most of the works would be completed by this stage, it is common practice to release some of the retention money at this point. Several standardised contracts will allow for 50 percent of the retention to be returned to the contractor when issuing the practical completion certificate. Once again, the exact conditions for returning retention money is specified in the conditions of contract.

If the supervising engineer discovers during site inspection that all works have still not been completed, he/she should withhold the certificate of practical completion and instead issue an interim certificate.

CERTIFICATE OF PRACTICAL COMPLETION				
1. Measured Works:				13,004.16
Deductions:				
2. Less 15% Retention		(1) x 0.15		1,300.42
3. Other: _____				
		(specify)		
4. Balance of Remaining Payment:		(1)-(2)-(3)		11,703.74
5. Details of previous payments:				
Cert No	Date	% Compl.	Measured Works	Retention
1	15.7.01	14	9,015.36	1,352.30
2	15.8.01	20	12,853.25	1,927.99
3	16.9.01	21	13,476.87	2,021.53
4	14.10.01	23	14,657.54	2,198.63
Total Previous Payments			50,003.02	7,500.45
6. Total Retention Monies		(2) + (5)		8,800.87
7. Return of Half of Accrued Retention		(6) / 2		4,400.43
8. Total Amount Due:		(4) + (7)		16,104.18
9. Total Contract Value				63,007.18
10. Balance Due after Defects Liability Period				4,400.43

The following table provides a sample of the essential information contained in a practical completion certificate. Once the remaining works have been inspected and found in good order, the contractor is eligible for payment of (i) the remaining works and (ii) half of the retention monies. The amount of retention money to be paid out at this stage is half of all retention monies with-held so far, including half of the retention calculated for the final works due under this payment. The other half of the retention money is held back until the end of the defects liability period.

Once again, only the actual payment issued to the contractor is recorded in the project accounts as an expenditure. The remaining retention money is recorded as an commitment.

Since this is the last payment directly related to completed works, there is no minimum amount limit to this certificate.

The date of issuance of the Practical Completion Certificate is the starting date of the defects liability period and should be the same as when the final works were inspected and approved.



Remember that (i) it is the responsibility of the supervising engineer to ensure that payments are made only for works which have been completed and (ii) that completed works are inspected to verify that the works have been carried out to the technical standards and quality prescribed in the contract. In other words, works which are substandard or has not been fully completed should not be included in the certificate.

12.6 Final Certificate of Completion

The final certificate of completion is issued after (i) the defects liability period has expired, and (ii) any remedial works have been inspected and found in good order.

Similar to all the other payment certificates, it is the responsibility of the supervising engineer to prepare the final certificate. The purpose of this certificate is to advise the client that works have been completed, all defects have been rectified - also those discovered during the defects liability period, and recommend that the remaining retention money is released to the contractor. Following the sample certificate for practical completion shown in the previous section, the final certificate may look like the sample shown in the table below.

FINAL CERTIFICATE OF COMPLETION	
Road Name: <i>Chouk - Prey</i>	Contract No: <i>RR128-2001-3</i>
Province: <i>Kampot</i>	Certificate No: <i>6</i>
Contractor: <i>Sunny Construction Co. Ltd</i>	
Address: <i>P.O. Box 354 Kampot</i>	
This is to certify that works at the above mentioned location(s) have been fully completed as specified in the Contract and accepted to the satisfaction of the Supervising Engineer after inspection following the Defects Liability Period in accordance with the terms and conditions of the Contract.	
	<i>Amount</i>
1. Remaining Retention Monies Withheld:	<i>4,400.43</i>
2. Deductions: <i>none</i>	<i>0.00</i>
3. Total Amount Due: (1)-(2)	<i>4,400.43</i>
4. Date of Practical Completion:	<i>15-Nov-01</i>
5. Date of End of Defects Liability Period:	<i>15-Feb-02</i>

If all defects have still not been rectified at the end of the defects liability period, the supervising engineer may allow additional time for the contractor to carry out this remaining work. If the contractor refuses to rectify any remaining defaults, the engineer may advise the client to find someone else to finalise the works, using the remaining retention money.

Deductions are entered for any deficiencies which the engineer have detected and the contractor have failed to correct after receiving reasonable notice. It is important to note that the deductions entered in this certificate, are final and the contractor will have no further possibility to take any remedial action, nor receive any later payments.

Once payment of the remaining retention money has been made, all obligations from both parties to the contract are regarded as fulfilled. This also constitutes the final completion of the contract. Only at this stage should the final retention money be recorded as an expenditure.



Chapter 13

Settlement of Disputes

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13.1 Avoiding Disputes

There will always be differences between the interests of the contractor and the client regarding the interpretation of the contract documents and the way the job should be done. The interest of the contractor is on the one hand to satisfy the client, and on the other hand to make sure that a reasonable profit is achieved. In cases of dispute, it is necessary to work out a compromise between the contractor and the client.

Any dispute should be resolved as soon as possible, thereby allowing the works to continue. It is in the interest of both the contractor and the client to achieve this goal. Before a dispute has been resolved, works may have to stop which leads to loss of income to the contractor and delays in progress.

Some general advise on how to handle disputes:

- ✓ The contractor should always inform the client through the supervising engineer at an early stage of any problem or disagreement.
- ✓ Make every effort to resolve any dispute within the framework of the contract.
- ✓ Record all necessary data representing the true development of a dispute.
- ✓ Always make sure that instructions which deviate from the contract documents are issued in writing, and remember to confirm in writing oral agreements reached during discussions or meetings. Prepare minutes of meetings and make sure that all parties present sign these minutes.

Some contract documents prescribe that when a claim for variations occur, the contractor is obliged to notify the client in writing within a specified number of days after the occurrence of a particular event or within a certain period after discovering the unexpected additional works. Obviously, it is important that the contractor then notifies the client or the supervising engineer within this period, thereby not forfeiting the right to submit a claim.

Most disputes can be settled through dialogue and through the established channels of communication such as regular site inspection and progress meetings. If the parties submit their claims and discuss their positions in a calm and civilised manner, there is normally good chances of finding solutions which are agreeable to both parties.

In this respect, it is imperative that both parties to the dispute is willing to deal with the issues as soon as possible. Delaying the informal settlement of disputes can easily be regarded by the other party as a intentional act of avoiding the problem or attempting to postpone a decision until the issue is dropped by the claimant. This may easily lead to contention and make ensuing negotiations more difficult.



As the unresolved dispute becomes more advanced, each of the parties has a greater interest in trying to prevail. The position of each party then becomes more unyielding as each focuses on winning rather than on resolving the dispute.

In many cases, the settlement of a dispute is important in terms of allowing further work to proceed. In cases where the disputes are related to foundation works, the variation claims may need to be settled in order for the civil works to be completed and thus allowing for building works to commence. Such situations can lead to additional aggravation from the client, since the dispute is then directly linked to the overall progress of works.

In such cases, it is important that both parties find intermediate solutions which avoids all works under a contract to stop. Holding a client at ransom by threatening with work stoppage is in most cases a poor approach to negotiations. Equally, a claim related to one work activity, gives no reason for halting other work activities which are not affected by a particular dispute.

If a dispute cannot be resolved through direct negotiation between the contractor and the client, the next step will be for the two parties to commence a process of dispute settlement following a set of pre-defined procedures. These procedures are often spelt out in the national laws regulating civil works contracts. In other cases, the conditions of contract specify certain procedures which the parties are obliged to apply.

A basic principle with most of these systems is that the courts will not accept any civil suits as a result of a dispute before the established mechanism of negotiations and dispute settlement have first been tried out. In a number of countries, the contract law will prescribe that these procedures are to be used instead of litigation.

13.2 Arbitration

The resolution of disputes through the courts is a time consuming and expensive way of solving disagreements. Also, the courts involve non-technical personnel such as judges, laymen and lawyers to establish the correct portioning of blame and amounts of compensation.

For this reason, the construction industry has developed procedures which attempt to settle disputes in a less complicated manner with the involvement of professionals with extensive experience from this particular industry. The most common process is the use of arbitration.

Arbitration is a process which is often defined by a professional organisation. Alternatively, the specific process to be applied can be agreed in each individual contract. The arbitration rules basically describe:

- how to initiate the proceedings,
- how arbitrators are appointed,
- how to conduct the proceedings, and
- the time allowed for making statements and award.

For large contracts, disputes are often taken to international arbitration panels. However, for small contracts, the cost of international arbitration is prohibitive and local solutions should be sought.

While a single arbitrator may be appointed for a small dispute, it is commonplace to use three arbitrators for larger disputes. In such cases, it is common that each of the disputing parties select one individual and the appointed arbitration institution selects the third arbitrator. Alternatively, the agreed arbitration association may appoint all three members of the panel.

The arbitration process should only start once the parties have exhausted all channels of informal negotiations. Appointment of arbitrators are normally swift, and the process normally starts when the nominated arbitrators have released themselves from other commitments. The process would normally include hearings where the parties are allowed to present their cases and field investigations. As compared to litigation, arbitrators are not bound by rulings in previous cases, and the courts' strict rules of evidence are eased.

When an arbitration panel rules on a particular dispute, the decision is binding or final. In other words this decision cannot be appealed by either of the parties to the contract.

Although arbitration is more efficient than litigation, it is still a costly and time-consuming process and therefore it is in the best interest of both the contractor and the client to solve disputes before they reach this stage. For this reason, most disputes are also solved immediately when they arise. By applying the good practices mentioned earlier, the occurrence of disputes may be further minimised.

13.3 Adjudication

The alternative to arbitration is the appointment of an adjudicator. An adjudicator is a single person, normally jointly appointed by the parties to a contract, preferably before a conflict arises.

When appointing an adjudicator, it is also normal procedure to agree on the rules for adjudication. The most common practice is to adopt rules already established by a professional association.

An adjudicator acts as a independent third person which is only called upon when disputes arise. Normally, this would be a professional with expert knowledge and experience in the type of works the contract covers. In addition, this person would possess extensive experience in the field of contracts management.

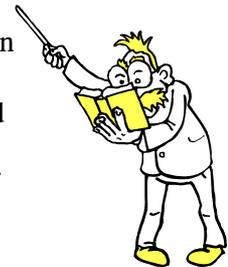
FIDIC

In the FIDIC Short Form of Contract, settlement of disputes are carried out by adjudication. Appropriate clauses refer to the role of the adjudicator in the general conditions. In addition, FIDIC has prepared a set of rules of adjudication for this standard contract, as well as a sample agreement for the engagement of the adjudicator.

In addition to a retainer for providing these services on a short notice, the adjudicator is remunerated for the specific work carried out in connection with a particular dispute. It is common practice that these costs are shared between the two disputing parties, thereby maintaining a balance between the contractor and the client.

When a dispute arises, the adjudicator has the authority to determine what are the necessary actions he/she will need to arrange in order to collect sufficient background to make a decision. He/she may decide to visit the site, review any relevant documentation and conduct hearings. All information made available to the adjudicator is treated as confidential and should not be disclosed without prior written consent of the parties.

The adjudicator will normally be obliged to provide a ruling within a certain number of days after a dispute has been referred to him/her by one of the parties. If any of the parties are dissatisfied with this decision, a written notice will be required within a set number of days. No notice of dissatisfaction within this period of time would be regarded as an acceptance of the ruling.



Although a contract specifies the use of adjudication, the outcome of this process can be appealed if one of the parties remain dissatisfied. The normal procedure would then be to settle the dispute through arbitration.

However, even if one of the parties expresses their dissatisfaction with the decision of the adjudicator, both parties will need to adhere to it until it is revised by an arbitrator.

The appointment of the adjudicator lasts until all the works under the contract has been completed, and all disputes have been settled.

13.4 Disputes Review Board

Similar to adjudication, disputes can be resolved by appointing a Disputes Review Board. This board is also assembled shortly after a contract has been signed. There are various ways of establishing this board. One approach is that each party selects one nominee, and these two nominees then select the third member, normally the chair of the board. The compensation for the board members is split between the client and the contractor.

Cases brought to the board should be those for which the client and the contractor have exhausted other means within their organisations to resolve. The board will then provide specific recommendations on how to settle the dispute, which the parties then, within a given period of time, are entitled to accept or reject.

If the decision of the board is rejected, it can be brought back for reconsideration or other methods of dispute resolution may be applied. In other words, the decision of a dispute review board may not necessarily be final and binding.

Although the decisions of the board are not binding, the parties to the contract would still be motivated to accept its recommendations, since pursuing the case through other methods such as arbitration or litigation would involve (i) additional costs and (ii) further delays before a decision is made and further delaying the works. It should also be acknowledged that the board would normally consist of highly qualified professionals or experts, so there is a great chance that any other dispute settlement institution would arrive at similar recommendations.





Chapter 14

Contracts Register

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14.1 General

All contracts awarded should be recorded in the Contracts Register at programme headquarters as well as with the project office. Not only is the contract register an important tool for expenditure forecasting - it also provides an excellent overview of all the contractors which in the past have carried out works in a programme, as well as providing a summary of all the construction companies currently engaged in a particular programme.

14.2 Cost Control

The purpose of the Contract Register is to assist the project accountant and the management to monitor progress of contracts. This register is normally organised through two forms. One form is used for recording payments carried out under a specific contract, and another form is used to log all the contracts active under a specific project or programme.

The Contract Register is based on information obtained from the Interim Payment Certificates, the Certificate of Practical Completion and the Final Completion Certificate, depending on the progress of the contract. The register will maintain information on:

- contract reference, date of commencement and completion,
- name of contractor,
- advance payments,
- submitted invoices (from the contractor),
- date and amount of interim payments and
- retention monies.

With this information it is possible for the project management to obtain a clear overview of progress of payments and forecasting cash flow requirements.

The Contract Register is kept in a designated file at the project management office. Copies are normally submitted together with the monthly progress and expenditure reports.

CONTRACT REGISTER									
District:									
Name and Address of Contractor:									
Contract Date:					Contract Value:				
Contract Reference Number:					Date Started:				
General Ledger Account Code:					Date of Completion:				
Reference		Category of Works	Invoice Amount	Progress Payment			Deductions	Retention on Payment	Posted to G/L Y/N
Date	No.			Date	Amount	Contract Balance			

14.3 Performance History

The contracts register is an important reference source when carrying out a bid evaluation. Through the contracts register, it is possible to establish whether a tenderer has carried out works previously for the project. If contractors have been engaged by the project in the past, the contract register may provide some valuable information about their performance, and their ability to conform to the planned time schedules agreed to in the contracts.

Also, it is possible to quickly establish whether a contractor is currently or in the process of being engaged by the project for other works. This information may affect the assessment of the contractor's current capacity to take on new work. If the contractors are already engaged by the project, they may have already committed their equipment and qualified staff to other on-going works.

All this information has a direct impact on the final selection of the best bid during a tender evaluation. As mentioned earlier, it is important that the evaluation committee selects a bid from a firm which can commence works according to the time schedule specified in the bidding documents, with the required equipment and personnel. Furthermore, if the contracts register shows that a firm has worked for the project before, it is then an important source for obtaining information regarding the firms' past performance.



Annex 1

Glossary

Addenda: Formal changes or clarifications issued by the client to all bidders during the tendering stage.

Additional Work: Works which were not recognised during bid preparation to be carried out in order to complete a project as planned.

Adjudicator: A person appointed to judge, arbitrate, decide and determine a matter in dispute between the parties to a contract.

Advance Payments: Payments received by the contractor before starting works under a contract. Advance payments are also referred to as mobilisation advance, to cover costs incurred before the first payment certificate is issued.

Adverse Weather: Unexpected weather conditions in a particular location during a particular time of the year that may slow down works progress.

Advertisement: A public announcement inviting tenders for goods, works or other services.

Alternative bid: A second tender submitted by a bidder which does not conform to the specifications but still meet the performance requirements of a project. Only allowed for if the client has specifically requested it.

Appendix to Contract: Document attached to the conditions of contract, containing key information pertaining to a specific contract, i.e. name and address of contractor and client, contract duration, payment schedule, bonds, insurance, etc.

Arbitration: Established mechanisms in which a dispute between the client and the contractor is resolved by an impartial third party or an impartial panel of selected individuals.

Authorised Representative: Person empowered to make binding decisions in relation to project works or contractual (and financial) issues on behalf of the parties to a contract.

Award of Contract: Informing a bidder that his/her bid proposal has been accepted. See Notification of Award.

Balanced Bid: Prices on bill items accurately reflects the actual anticipated price of each work activity to be performed.

Bid: Price offer in response to an invitation to bid for a specified amount of goods or services, also referred to as a tender or proposal.

Bid Evaluation: Process for reviewing bids for determining the best offer, often referred to as the lowest responsive bidder, carried out in accordance with specified qualification and evaluation criteria.

Bid Form: A prescribed standard format for presenting a priced offer to carry out all the works as described in the bidding documents. A bidder who does not use this form, may be disqualified.

Bid Modification and Withdrawal: The bidder may modify or withdraw a bid, provided that written notice of the modification or withdrawal is received by the client before the deadline for submission of bids. Modifications and withdrawals needs to be submitted the same way as the original bid, and should not be opened before the bid opening session.

Bid Opening: Formal and public meeting during which all the bids submitted under a specific contract is opened, and the price offers are published and recorded.

Bid Packaging: Organising works planned in a project by splitting it up into distinct contracts on the basis of types of services, goods or works to be carried out, and deciding on the method of procurement.

Bid Prices: Prices quoted by bidders for the services, goods or works to be procured, usually referring to the total price of a bid proposal.

Bid Security: (also known under the term "bid bond") a bank guarantee, certified cheque or cash designed to provide financial assurance that the bidder will honour his/her price offer during the bid validity period, thereby protecting the client against loss or damage resulting from the premature withdrawal of a bid, or from a bidder refusing to sign the contract, or from failure to provide a performance bond, if required.

Bid Validity Period: Duration expressed in days or weeks during which the bid price is firm and valid.

Bidder: A corporate body, agency or organisation which has prepared and submitted a bid proposal.

Bidding Documents: Set of documents established by the client, providing bidding instructions, evaluation criteria, conditions of contract and a description of works for the purpose of obtaining comparable offers from a number of tenderers.

Bidding Procedures: General reference to type of bidding competition i.e. national competitive bidding, domestic canvassing, direct purchase, etc.

Bidding Process: The line of activities from the preparation of bidding documents, announcement of works, submission, opening and evaluation of bids, to contract award.

Bill of Quantities (BoQ): An itemized list on the volumes of works to be performed. Contracting firms are invited to submit unit prices to each of these work items. The unit prices form the basis for the cost of each work activity as well as the total contract value. The BoQ also forms the basis for measurement and payment of completed works.

Brokerage: The general contractor sub-contracts all the work to other firms.

Cash Flow: The timely provision of funds making it possible to meet all cash payments on time during the course of a project.

Certificate of Practical Completion: A form which is issued to verify that all work described in a contract has been completed at a specified quality. This certificate acts as an advice to the client to pay the contractor for the remaining works and part (usually half) of the retention money.

Chainage: The distance from some fixed reference point along a road or survey line, used for identifying a location along the road line.

Change Orders: Written instructions to the contractor to carry out works which deviate from the works specifications, drawings or bill of quantities agreed in the contract.

Clarification of Bids: During tender evaluation, the client may seek additional information from a bidder. This is carried out without asking for any change in the price or substance of the bid.

Client: Equivalent to employer, principal and owner – the party requesting and paying for the goods and services contained in a contract.

Closed Specification: A specification that is expressly restrictive in stating that only specific products, identifying brand names, will satisfy the quality requirements or is implied when performance is so narrowly prescribed that only one or two products will satisfy the requirement.

Commencement Date: The day on which the contractor needs to start work in accordance with the contract.

Competitive Bidding: Procedure allowing a select number or any qualified bidders to submit prices for a specific contract. See also Local and International Competitive Bidding.

Completeness of Bid: Compliance with requirements specified in the bidding instructions – normally in the sense that all items in the BoQ have been priced and the bidder has not expressed any reservations against carrying out all the works.

Completion Date: A specified date by which all works mentioned in a contract must be completed.

Conditions of Contract: Requirements included in a contract agreement, setting out important obligations, rights and liabilities of the parties to the contract.

Consultant: Individual, firm, organization, entity etc. engaged to provide professional or expert advice.

Contingencies: An amount (often 10-15 % of the total costs) allowing for additional costs resulting from unforeseen circumstances.

Contract: A legally binding agreement signed by two parties, involving a client who agrees to pay a certain amount to a contractor for carrying out certain works at defined quality standards within a certain period of time.

Contract Amount: Total sum of money which the client has agreed to pay for the works defined in the contract.

Contract Documents: All documents which form part of the contract. Normally, include general terms and conditions, specifications, drawings, and volumes of work.

Contract Duration: The time specified in the contract for completing the work.

Contractor: Individual, association, corporation or other entity, which is party to a contract and is carrying out works or services for an agreed amount of money.

Cost Estimates: The expected cost of carrying out a stipulated amount of works and/or purchasing certain goods.

Cost-Plus Fee Contract: A contract under which the contractor is paid for incurred costs, plus an additional allowance provided for overheads such as supervision and profit.

Delivery Schedule: Expression normally used in supply contracts, referring to when goods and materials will arrive from the manufacturer to the premises of the client. When used in the context of works contracts, it is equivalent to the work plan, i.e. at what date the various work items will be completed.

Defects Liability Period: Also referred to as the Maintenance Period. Following the completion of all works in a contract, the client will define a warranty period, during which the contractor is responsible for remedying any substandard work which may appear.

Direct Costs: Expenses related to specific work activities such as labour wages, operation of tools and equipment or purchase of materials. Indirect costs such as supervision, risks, profits and other overheads are normally calculated as a percentage of the direct costs.

Direct Purchase: Procurement carried out based on one single tender/quote from one individual supplier. Direct purchase will normally include price negotiations between the client and the contractor. Appropriate when extending contracts to cover additional works.

Dispute: Difference arising out of the contract between the contractor and the client which cannot be amicably settled between the parties. Disputes should then be treated in

accordance with the appropriate clauses in the contract which prescribes the dispute resolution mechanism to be applied.

Drawings: Part of the contract document, providing a graphical presentation of the works.

Design-Construct Method: Contract arrangement by which the client awards a single contract for both the design and the construction works - also referred to as turnkey project.

Designer: Person responsible for developing an outline of a proposal based on user needs and other performance requirements. This outline is further developed into detailed designs and work drawings to be used for guiding the works.

Design Specifications: Work specifications which in detail describe the work methods to be applied by the contractor in order to satisfy a quality requirement.

Eligible Bidders: Firms which adhere to the minimum requirements in order to qualify as a bidder for a contract.

Employer: See Client.

Engineer: Person or party appointed by the client to act as its representative for the supervision of the contractor, as specified in the contract.

Equipment and Plant: Refers to tools, apparatus, vehicles, excavators, rollers or other machines mobilised by the contractor for carrying out the works.

Equivalent Specifications: Works specifications which refer to brand names or catalogue numbers as minimum requirements, however, also allowing for equivalent equipment or solutions. The engineer would normally be required to assess whether the alternative to the brand names qualify to the term "equivalent". By allowing equivalent alternatives to the stated brand names, the client maintains the principles of competitive bidding and allowing the tenderers to freely choose their suppliers of equipment and materials.

Evaluation Criteria: The qualities for which bids are reviewed and ranked including financial, technical, equipment and personnel requirements.

Evaluation Report: Document stating the findings of the tender evaluation committee, detailing the ranking of the bidders, reasons for rejecting certain bids, participants to the meetings, any clarifications obtained, etc.

Expressions of Interest: A written notification to the client stating the interest of a company to bid for and carry out works on a certain project. Normally, the interested firm will include information proving their competence and experience relevant to the project works. Submitting an expression of interest may be required in order to be eligible to bid.

Feasibility Study: Preliminary engineering and architectural designs, cost estimates, economic and socio-economic and environmental analysis forming the basis for deciding whether to approve a certain project.

Final Payment Certificate: Statement issued by the engineer to the client stating (i) that completed works are in a satisfactory condition and that any defects which emerged have been rectified by the contractor and (ii) that any remaining payments or retention money can now be released.

Final Completion: All works have been completed to the satisfaction of the engineer and any defects appearing during the defects liability period have been repaired. The client will at this stage take possession of the site, install a maintenance and operation system and hand the created assets over to the intended users.

Final Payment: Payment due to the contractor according to the Final Certificate issued by the engineer.

Fixed Price Contract: A contract in which the total amount to be paid to the contractor is fixed and cannot be altered irrespective of any changes in conditions. Basically, the contractor is required to guarantee a total price for the entire works. Also referred to as a lump sum contract.

Force Account: or by direct administration implies that instead of engaging a contractor, the works is carried out by the client by employing its own workforce and equipment fleet. Although some of the works is subcontracted to private firms, it is still regarded as a force account operation as long as the client agency is directly in charge of works execution and progress.

Force Majeure: An event which cannot be anticipated or controlled and which may have a serious impact on the execution of works. Such events include outbreak of war, storms, floods, earthquakes, general strikes and civil unrest. In the context of a contract they are also referred to as Acts of God. Most contracts will accept that work delays caused by such events are beyond the control of the contractor.

Front-Loading: A deliberate plan by a bidder to obtain a disproportionate share of the payments at an early stage of works implementation by overpricing work activities or bill items scheduled for the beginning of the projected works.

General Conditions of Contract: Part of the contract documents, containing the general clauses related the overall obligations of the parties to a contract.

General Contract Method: Contract arrangement in which the client engages a single firm, often referred to as the main contractor, for providing all the works. This firm may subcontract parts of the works to other companies, however, the client will only deal with one contract agreement with the general contractor.

Identification Stage: The initial stage of a project dedicated to creating an overall outline of the project design based on user requirements and available financial resources. This stage also includes the final decision whether to proceed with the project.

Implementation Stage: Period during which physical works are actually being carried out as intended in the project design.

Incomplete Bids: Bid which lacks important information, normally making it difficult for the client to compare it with other offers. Also, if bids are submitted without the required securities, signatures or with prices only covering parts of the works, they would be considered incomplete.

Indemnification: Holding the other party harmless or not responsible for certain actions or results thereof. Taking the responsibility for something which would normally be blamed on another party.

Inspection: Verification, carried out by the engineer, that works and materials conform to the agreed quantities and quality standards as described in the contract documents.

Instructions: Orders given by the engineer to the contractor during the construction works in relation to inspection of works, interpretation of drawings and specifications, or change orders.

Instructions to Bidders: Rules detailing the procedures which the bidders *and* the client are obliged to adhere to when participating in a tender competition. These rules will cover all stages of the bidding process, from announcement, required contents of a tender, bid opening and evaluation to final signing of a contract.

Interim Payment Certificate: Standard form specifying the amount to be paid for inspected and approved work completed by a contractor. Interim certificates are issued by the engineer at agreed intervals during the course of a contract.

Insurance: A contract in which a company guarantees to cover any financial damages as a result of potential loss, damage or injury in return for paying a premium. Contractors are often required to carry insurance for their workers, against damages to third parties and on goods and materials supplied under the contract.

International Competitive Bidding (ICB): Procedure for bidding in which bids are announced internationally and qualified firms from any country are allowed to participate – common procedure applied in WB and ADB financed projects.

International Shopping: Procedure for procuring from a select number of contractors or suppliers from a limited number of countries, based on invitations furnished directly to qualified firms. IS used on ADB financed projects where the size of the works is not large enough to justify the use of international competitive bidding.

Invitation to Bid: Announcement, requesting prospective bidders to submit prices for a specific contract. The invitation would also include the name and address of the client, a brief description of the works, bidding rules and deadlines for submission of bids.

Invoice: A claim for payments for goods or services provided.

Joint Venture: A registered partnership consisting of two or more persons or organisations established for the purpose of carrying out a specific commercial undertaking. Normally, the client will not accept a bid from a joint venture which represents a bidder who is already represented in an other joint venture bid for the same contract.

Letter of Acceptance: Also referred to as Notification of Award. Written instructions to a successful bidder that the client wishes to enter into a contract with him/her on the basis of his/her tender.

Liquidated Damages: Amount specified in the contract to be paid by the contractor to the client for each day that works completion is delayed. This sum, also referred to as Penalties, is intended to compensate the client for losses incurred due to late completion of the works.

Litigation: Process of resolving a dispute using the courts and engaging the services of lawyers.

Local Competitive Bidding (LCB): Competitive bidding among domestic firms. LCB procedures normally allow foreign bidders to participate, however, the works are only advertised locally.

Lowest Evaluated Responsive Bid: A tender which is deemed to be the lowest bid among the responsive bids reviewed by the bid evaluation committee. This includes other evaluation criteria than just the price level.

Lowest Priced Bid: The lowest bid can be established during bid opening, however, this is purely a price comparison which normally takes place before the detailed review of the bids. In other words, no assessment of responsiveness has taken place.

Lump Sum Contract: See Fixed Price Contract.

Lump Sum: A fixed amount payment – not based on a unit price.

Major Change: Orders which significantly changes the original intentions of a project or which involves substantial changes in the volumes of work to an extent that it would be more appropriate to establish a new contract.

Major Deviations: Irregularities in a bid which makes it difficult to compare it to the other bids. The reason may be that the bidder has made reservations to the prescribed work methods, have not quoted prices on all work items, cannot adhere to the specified delivery schedule, do not agree to all the general conditions of contract, i.e. payment schedule, sureties, warranties, etc.

Mediation: Alternative to litigation in which a neutral panel of experts is used to find an acceptable solution to a dispute.

Methods of Procurement: Refers to the bidding procedures used i.e. direct contracting, domestic canvassing, national or international competitive bidding.

Minor Deviations: Irregularities in a bid which are so small that there is still no justification for disqualification. Through minor corrections the bid can still be evaluated and compared to the other competing bids.

Modification (or Withdrawal) of Bids: See bid modification.

Negotiated Contract: Instead of arranging a bid competition, a contract is awarded on the basis of price negotiations with one single company. See Direct Purchase.

Negotiation: Price bargaining between two or more parties.

NGO: Non-Governmental Organization.

Nominated Subcontractor: Subcontractor selected by the client without the involvement of the main contractor. Nominated subcontractors can be identified either before or after the award of the main contract. Still, it is expected that the subcontractor will enter into an agreement with and report to the main contractor who has the overall responsibility of coordination and progress of all parts of the works.

Non Compliance: Not adhering to certain requirements of the bidding documents or conditions of contract.

Notification of Award of Contract: See Letter of Acceptance.

Obligations: Duties of the parties to a contract.

Offer: Providing a priced bid or quotation for a certain amount of goods or services.

Opening of Bids: See Bid Opening.

Operating Costs: In the context of civil works, refers to expenses incurred when operating and maintaining vehicles and construction equipment. Operating costs can also be the costs related to maintaining a building.

Open Specification: A specification which does not restrict the bidder to using specific brand names or products, but instead leaves this choice to the contractor as long as they meet defined levels of performance and quality.

Output: Quantifiable assets created from the completion of certain activities and provision of goods and materials.

Overheads: Indirect costs which are normally not itemised in a contract, often linked to the direct costs, such as profits, supervision, risks and administrative costs.

Owner: Same as Client, Principal or Employer.

Partial Completion: Contractor hands over parts of the works before all works have been completed (i.e. a section of a road). This implies that the defects liability period can then commence for this section of the works, and that some of the retention money can be released at an earlier stage. It also implies that the client takes early possession of some of the structures and is then responsible for the maintenance and operation of this part.

Payment Schedule: Time table provided in the conditions of contract stating when and at what intervals payments are due to the contractor.

Performance Bond: Also known as performance security – often a bank guarantee designed to provide the client with financial assurance that the contractor meets all obligations in terms of completing the works described in a contract. Can also be accepted in the form of a cashier's check, certified check, or cash provided by the contractor upon signing the agreement. Normally not applied to small contracts.

Performance Specifications: Work specifications which emphasise the required performance or quality requirements instead of describing the materials or work methods to be applied.

Postqualification: Procedure under which bidders are qualified during the evaluation process, after they have submitted their bids, rather than before submission of bids under a separate and distinct procedure.

Certificate of Practical Completion: Issued by the engineer when all works defined in a contract have been completed, and includes instructions to the client to pay for the remaining works, and releasing parts of the retention money. The date of issuing this certificate constitutes the start of the defects liability period.

Prequalification: Procedure for screening potential bidders to avoid receiving tenders from firms which are not qualified, inexperienced or do not have the required financial capacity required to undertake the works. Prequalification helps to reduce the time spent in evaluation and review of offers since bids are only accepted from firms meeting certain criteria.

Price Adjustment: Provisions in the contract allowing the contractor to increase prices in the event of increased costs of labour, equipment and materials over which the contractor has no control. Appropriate clauses would describe in detail how to calculate the increased price of the contracted works, based on the higher cost of a particular input. Normally not applied in small contracts of short duration.

Procurement: Purchase of goods or services to create the desired outputs of a project. This can include the award of civil works contracts, consultancy services, supply of materials, and hiring of personnel and equipment. When using public funds, this needs to be carried out according to government rules and regulations, with the objective of achieving full transparency in all transactions and allowing fair competition to all qualified suppliers.

Procurement Plan: Overall plan detailing how the works will be divided into separate contracts and subcontracts, the method of procurement, and when the goods and services are expected.

Project Manager: Person engaged by the client to supervise all project activities. A project manager may be recruited already during the identification stage, taking the project from the initial design phase through to final completion of works. Some contract documents refer to the engineer as the project manager. On government funded projects, the client may recruit a project manager from a technical agency.

Provisional Items: Work, which is provided for in a contract, but which cannot be determined with certainty before the work commences.

Quantity Surveyor: Person in charge of estimating volumes of work and quantities of materials on building construction projects

Ranking: Order of merit of bids, based on the decisions of the bid evaluation committee.

Reasonable Competition: Applying the minimum degree of competition required for a certain method of procurement. For example, in the case of domestic canvassing, a minimum of three bids from separate bidders are received and evaluated.

Rebidding: When none of the received bids are found responsive or financially attractive or the client has received too few bids, it may be decided to reject all the bids. The client will then need to repeat the bidding exercise and invite for new tenders. When rebidding, it is useful to take measures which will ensure that other bidders will participate during the second round.

Rejection of Bids: During bid evaluation, some bids will be deemed not responsive or financially unattractive. These bids are discarded and will not be further considered. If all bids are treated this way, the client will need to rebid.

Resident Architect/Engineer: A person often employed as representative of the client on site.

Resolution of Disputes: Finding solutions to disagreements between the client and the contractor. In order to limit the time spent on disputes, contract documents will normally prescribe certain procedures which the parties are obliged to follow if they cannot resolve a disagreement amicably by direct informal negotiations. Refer to Arbitration.

Responsive Bid: A bid which abides to all the bidding instructions and which does not deviate from or contain any reservations to the terms and conditions of contract. Non-responsive bids should be rejected.

Retention: Withholding a percentage of payments due to the contractor as an incentive to ensure that the contractor rectifies any defects occurring during the course of the contract or during the defects liability period. Part of the retention is released when the engineer issues the Certificate of Practical Completion, and the rest at the end of the defects liability period.

Scope of Services: Descriptions of activities to be carried out under a contract, normally in consultancy contracts, also referred to as Terms of Reference (ToR).

Separate Contracts Method: Instead of relying on a main contractor to engage subcontractors, the client engages all contractors directly on separate contracts for various portions of the work.

Sketch Plans: Preliminary drawings carried out during the identification stage describing the main features of the project.

Statutory Obligations: Laws and regulations that all parties to a contract must follow and which cannot be overruled by clauses in a contract.

Short List: Select list of qualified firms or individuals, derived from a long list, considered to be the most qualified and suitable to be invited to submit tenders for a particular contract.

Site: Location where the contracted works will be carried out.

Site Conditions: Physical and working conditions prevailing at a project site.

Site Investigation: Studies carried out at or in the vicinity of a work site resulting in information relevant to the execution of works, such as hydrology, soil conditions, suitable building materials, etc. Bidders may be required to carry out a site inspection as part of the bidding exercise.

Site Management: Normally refers to the supervisory and administrative staff employed by a contractor and fielded in a site office. May also include the organisation and work methods applied by this staff in terms of dealing with management issues related to the works performed by the main contractor, suppliers and subcontractors.

Special Conditions of Contract: Additional clauses to a standardised General Conditions of Contract, relevant to a certain type of contracts or to one specific contract.

Specifications: A comprehensive description and explanation of the works. Specifications normally refer to all the technical documents contained in a contract agreement, i.e. work specifications, drawings, maps, photographs, road condition inventories, etc.

Standard Specifications: A general document produced by a government agency or professional association applied to all projects containing certain type of works. For example, a public road works agency will have standard specifications for road construction works. This standard document will be used in all road works contracts managed by this agency.

Standard Designs: Technical drawings and specifications which will describe a uniform practice of construction which needs to be applied for all contracts awarded by a certain organisation. I.e. the Ministry of Health may have standard drawings of rural health clinics. Local government units may apply a standard cross section design for rural roads.

Subcontract: A contract or purchase order, other than the main contract, required for the performance of certain works, supply of materials, provision of consultancy services or hire of equipment. This contract is not entered into with the client or owner of the project. Instead, the contract is awarded and supervised by the main or general contractor, which will also be held responsible for the quality, payments and timely provision of the subcontractors services.

Subcontractor: Individual or corporate entity which enters into an agreement with a general contractor to carry out a subcontract.

Supplier: Individual or company providing services or manufacturing, producing and shipping any goods or materials requested under a contract.

Submission of Bid: Providing a priced proposal for certain goods or services described in the tender documents. The bids will need to be delivered to the client according to regulations prescribed in the Instructions to Bidders.

Substantial Completion: When the work is completed to the point that the client can start using the created assets for its intended use, although some minor works have still not been completed.

Supply Contract: A contract for the purchase of equipment and materials, which may include activities such as manufacturing, transport, customs handling and temporary storage until final inspection and handing over to the buyer.

Surety: See Bid Security or Performance Bond.

Suspension of Works: Temporary halt in works usually caused by the client failing to carry out certain obligations, force majeure, or other reasons. Common reasons are property disputes and the engineer failing to inspect works on time before the next activity can proceed. Works are normally continued after the reasons for delay have been dealt with.

Technical Specifications: Part of the contract documents which prescribes in detail the work methods and qualitative requirements of materials in terms of size, capacity, tolerance, materials, tensile strength, etc.

Tender: See Bid.

Tenderer: See Bidder.

Tender Documents: See Bidding Documents.

Termination of Contract: Discontinuing the obligations in a contract agreement by the client or the contractor. Normally, the conditions of contract will specify certain circumstances under which a contract can be terminated. The most common reasons are default by the contractor to provide the services according to set schedules, contractor refuses to rectify defects, client's failure to pay the contractor and the contracting firm declared bankrupt. A contract may also include clauses regulating a termination for convenience, i.e. for no specific reason which can be blamed on the other party.

Terms of Reference (TOR): See Scope of Services.

Time Extensions: Changes to a contract in which the allowed duration for completing the works is increased, normally granted when the reasons for delays are beyond the control of the contractor.

Unbalanced Bids: Pricing of the various items of work which does not reflect the actual costs but redistributes those costs to serve specific intentions, such as receiving a disproportionate amount of payments at an early stage of the contract (front-loading). It may also be done for certain bill items under which the contractor expects that the quantities will be substantially increased during the course of the contract.

Unit Price: Specific price offered for a work item based on agreed units of measurement.

Unit Price Contract: Contract where the total price is based on quoted prices per unit of work or materials and pre-determined volumes of work and materials. The contract documents will then include a Bill of Quantities.

Validity of bids: See Bid Validity.

Variations: Changes (ordered by the engineer or client) to the agreed works during contract execution.

Warranty: A statement normally promising that the goods and services will be delivered and will be in conformity to the specifications of the contract, will be free from any defects and will be provided within a specified period of time. If the contractor does not adhere to this statement, the client may regard this as a breach of contract.

Work Plan: Schedule indicating the sequence of work which has to be undertaken, by whom, and its appropriate timing.

Worker's Compensation: Insurance covering the safety of the employees during working hours. This insurance would normally not be subject to any portioning of blame.

Works: Reference to the services to be provided by a contractor.



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