

Principles of Construction Management
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Lecture - 33
Essentials of a Good Contract

[FL] and welcome to the series of lectures on principles of construction management and I must acknowledge my gratitude professor K C Iyer of the department civil engineering IIT Delhi, for the numerous discussions and help that is given me and understanding legal issues relating to construction projects and in this module we are talking about precisely that legal issues in construction management of course, as was very clearly established I stated it very clearly that is not the intension of this series of 5 6 lectures to make lawyers out of civil engineers.

The intent is only to expose them to certain facets which involved and understanding of the legal process, and one of the very important parts of the legal process is a contract and today what will talk about is essentials of a good contract to start at the beginning construction management is directed to ensure that the project moves in a smooth manner.

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Construction management is directed to

Ensure that the project moves smoothly in terms of	Now, a contract is the document that should provide the framework for all these!!
➤ Schedule	There is a multiplicity of agencies involved, and there could be multiple contracts operating
➤ Cost	Contract management needs to be looked with this perspective
➤ Quality	
➤ Safety	
➤ No-disputes	

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Now, what does that smooth manner include it includes schedule that is the project should not be delayed for whatever reason cost it should be completed within the

estimated cost, the quality of construction should not be compromised in any way of form.

The construction should be carried out in a manner that there are no accidents, a safe construction site, a safe construction and finally, there are no disputes and heart burns among the different stakeholders. Now in order to ensure that and given the fact that there are multiple agencies involved in a construction project, it is important that each agency knows its role, its responsibility, and its scope of work and this is precisely what is laid down and defined in a contract. Contract is a document that provides the framework for all of these, and there is a multiplicity of agency involved, and there could be multiple contracts operating at a construction site and therefore, contract management needs to be looked upon with this perspective.

The idea should be to operate different contracts in a manner that the overall schedule quality, cost, safety are not compromised and the parties that are involved the agencies.

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Contract management

Generally speaking, companies usually have some standard form of contract conditions, which seek to divide the responsibilities in the following operational stages:

- Pre-bid stage
- Execution stage
- Post-execution stage

Handwritten diagram showing a timeline with three stages: Bidding (marked with a circled 1), Execution, and Main operations (marked with a circled 2). A small number 5 is at the bottom right of the diagram.

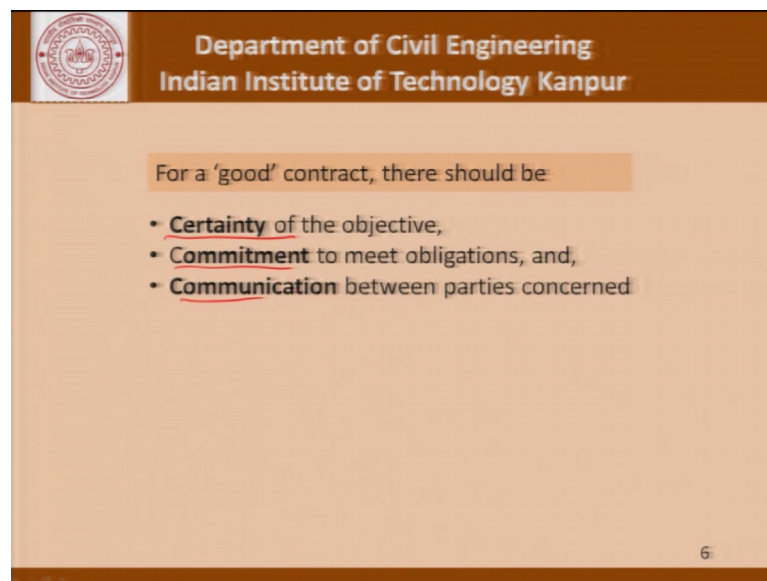
Which are involved do not have a feeling of being unjustly treated, continuing contract management generally speaking, companies have a standard form of contract conditions, which seek to divide the responsibilities in the following operational stages of a project.

The Pre- bid stage, the Execution stage, and the Post- execution stage, so on the time access if you see this is the point where bidding is going on, and it is being identified as

to which of the agencies will be involved in the actual execution of the project, and post this point we have maintenance, operations and a different set of agencies become involved.

The people were involved in execution are not necessarily involved in the operations and people are operating the plant need not be involved in a very active manner as far as the execution is concerned. So, as far as the companies are concerned now in each of these stages especially the execution stage and the operation stage there are multiple agencies operating in a plant at a construction site the facility that has been created or that has being created and contracts define their relationships and what this slide tells us is that companies have standard forms of contract conditions in general, standard contract forms which define the responsibilities and roles in the different stages.

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For a good contract there should be Certainty of the objective, Commitment to meet the obligations, and finally, Communication between the parties concerned. These are the 3 important pillars of a good contract, certainty of the objective the objective should not be undefined or loosely define or has a meaning which is different to different people, a good house there is nothing like a good house because what this good house to me need not be a good house to you, we have to have the parameters which define the good house. So, that we both are all understand what is being meant when it is being said that

we are building a good house, we are building a good road similarly the parameter should be clearly understood.

There should be a complete commitment of all parties to meet the obligations that something which is a given once we sign the contract we are committing ourselves and the organizations that we represent to a legal process and saying that yes if we do not fulfill our commitments we are subject to legal action. Similarly communication between parties concerned, the parties must be able to establish communication links they should be able to talk to each other effectively and in a manner that is easily understood. So, these are basically the pillars of a good contract and it is important that we understand these pillars because the ultimate objective is to ensure that there are no disputes before we go into more details of what makes up a good contract it is probably good to understand a little bit about what causes some disputes in the contracts.

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Common reasons for disputes

- Incorrect ground data
- Contracts containing faulty and ambiguous provisions
- Faulty administration of contract
- Deviations (extra items, escalation in rates)
- Suspension of works
- Hindrances due to other contractors

(contd.)

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Common reasons for disputes could be incorrect ground data, contracts containing faulty and ambiguous provisions, faulty administration of the contract, deviations extra items and escalation in rates, suspension of works, hindrances due to other contractors. Some of these things we have actually alluded to gone through in different lectures and different examples that have been sighted in the course of the series of lectures itself. You would recall that we have done an example on the boundary wall construction, now

in that boundary wall construction if you would recall we had calculated the quantities for the plaster on the sides of the walls.

What had been left out of this calculation was the plastering at the top of the boundary wall, now this does not constitute an extra item for the simple reason that the provision for a plaster is already there, the location of the plaster is not very different from what has already been calculated or what has already been incorporated in our estimates or what we will use to make the payments, but all that has happened is that the quantity involved maybe slightly different and that does not constitute an extra item, that just constitutes additional quantity and that additional quantity if it is reasonably small and does not affect the overall value of the contract can easily be accommodated within the existing contract itself.

The same example had also the absence of structural steel; you will recall that we had not included the provision of these members the structural steel angles on the top of the boundary wall at certain fixed spacing which would be used to fix the barbed wires. Now not having these structural items is indeed an extra item, but again this can be easily resolved as far as a contract is concerned provided there are provisions in the contract to make sure that the contractor can be asked to do these things and the contractor agrees to do those things that yes in the interest of carrying out the project in an effective and a complete manner if there are certain extra items to be carried out we will carry them out.

This is precisely one of those examples of an extra item, similarly since projects continue for a long period of time there is always a possibility of an escalation in rates, there is always a possibility of prices of essential commodities like cement, steel, you and aggregates changing over time and if the provision in the contract exists to provide for some changes in the rates, that are payable depending on or related to the cost of index, related to the price index, it always makes the life of the contract manager or the construction manager easier to the extent that there are not likely to be any disputes on account of prices.

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Reasons for disputes (Contd....)

- Owners not handing over site as agreed
- Contractor being of poor means
- Defaults by contractor
- Unreasonable attitude adopted by contractor or client
- Delay in payment of bills
- Observations arising out of technical examination of works

Cash flow

Inspections/QC/QA

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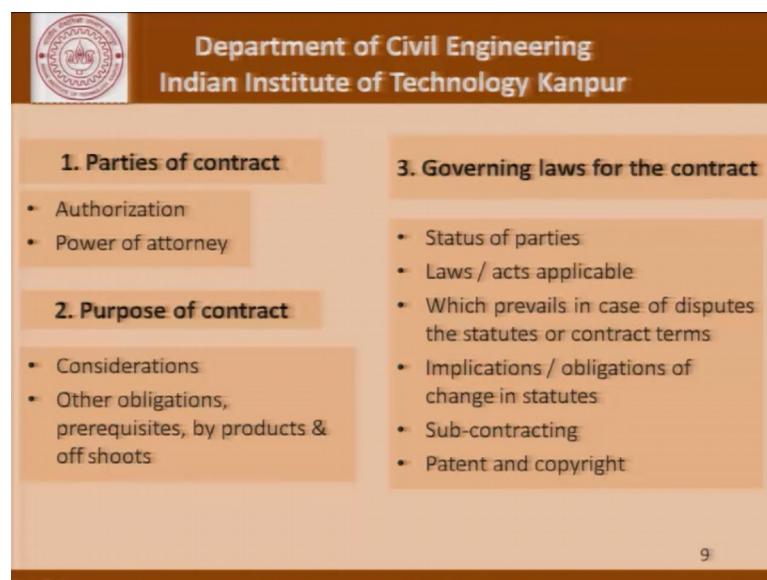
Continuing with some more reasons for disputes in contracts owners not handing over the site as agreed contractor being of poor means defaults by contractor's unreasonable attitude adopted by the contractor or the client, delay in payment of bills and observations arising out of technical examination of works are also important causes for disputes in a construction project, and therefore, we must make sure that in the contract there are provisions that adequately address issues relating to these aspects, delay in payment of bills is a very important part because at the end of it is the timely payment of bills by the client to the contractor that ensures cash flow as far as the contractor is concerned. In normal construction practice the contractor relies on receiving money from the running account bills to be able to continue to procure materials and pay salaries and so on. If there is undue delay in payment of bills, processing of bills at the end of the client or the owner it makes the life of the contractor very difficult and the moment there is a resource crunch that the contractor feels there is always likely to be a dispute.

Similarly, the issue of observations arising out of technical examination of works, now this is something which is very close to issues arising out of inspections, quality control, and quality insurance and that something very important as far as and handling them properly in the contract document itself is something which is very very important from the point of view of ensuring that there are no disputes no 2 clients are the same and therefore, the contractor should not get into an agreement or should not enter into a contract with a client who maybe more stringent as far as compliance with quality norms

is concerned, it cannot be argued at any stage that since this was acceptable at other sites it should also be acceptable here.

That is why it is important that the contractor understands the contract and that something which will probably come to later on, it is important that the contractor and the client both understand the contract and lay down all the provisions as far as quality control, inspections are concerned before start of work, before even entering into the contract and proceeding to be a part of the execution of the project. Let us come to the important parts of what constitutes a good contract and that was what our lecture today was titled.

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The first thing is that parties the contract should be clearly defined and it should be established that the people of sign the contract have the right kind of authorizations and power of attorney and so on. The purpose of the contract should be; obviously, as clearly stated as possible in terms of considerations, obligations, prerequisites, by products and off shoots.

The considerations that are going to be paid by one party to another the kind of agreement or kind of promise that one party will deliver such and such a goods and service to the other should be very clearly specified, what would be the governing laws as far as the contract is concerned in terms of status of parties laws and acts applicable which prevail in the case of disputes in statutes of contract terms implications and

obligations in case of change in statutes subcontracting patent and copyright. These are subjects which have their own laws at times and it is important that the kind of laws, the kind of rules, that are applicable for this particular contract or a particular contract are clearly laid down in the contract itself.

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The slide is titled "Department of Civil Engineering Indian Institute of Technology Kanpur". It contains two main sections: "4. Scope of work" and "5. Price".

4. Scope of work

- Should be clearly defined.
- Clauses like – *"scope includes ___ but not limited to ___ and any other item considered essential for safe operation"* facilitate completion.
- Variation in scope.
- Extra work and extra time.

5. Price

- Fixed or variable.
- Base date.
- Formula for variation.
- Ceiling.
- Index.
- Foreign exchange.
- Taxes / duties on price variation.

Handwritten notes in red ink are present at the bottom of the slide. On the left, there is a diagram of a rectangle with a circle inside, and a line segment with a circle at its end. To the right of the diagram, there is a box containing the text "\$ 100 @ 60". Further right, the word "Risk" is written.

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Further the scope of work neediness to say should be clearly defined clauses like scope includes such and such, but is not limited to such and such and any other item considered essential for safe operation facilitate completion. This is the kind of clause which I was mentioning in the case of the boundary wall just a minute ago that if this clause exists then we can use this clause to ask the contractor to include that item on structural work which is a small item, but it is very important for the safe operation of the completeness of the project, if there is a variation in scope, how will it be handled, to what extent can variation be allowed.

Similarly, they needs to be a clause in terms of extra work and extra time should there be a delay on part the client usually the contract is valid from one point of time to another, now should there be a delay that the project is not getting completed here for reasons which are not attributable to the contractor. Then the contractor has the right to say that well this cost was valid only to this point in time and beyond this point the cost should be escalated by some 10 percent 20 percent whatever that number is. So, there has to be a provision which addresses that in case there is extra time being allowed to complete the

project, what would be the cost implication as far as the pricing is concerned there are different types of contract which will probably talk about it later lecture, whether it is fixed or variable, what is the base date for taking the prices, formula for variations, ceiling as far as the variations are concerned, the index, foreign exchange and tax and duties and prices variation these are things which could cause variations or changes in the cost of commodities.

For example if the cost of diesel changes, the cost of running construction equipment changes, if the government or any regulatory authority levies a tax on certain codes or services the cost may change. It has to be clearly laid down in the contract as to what will be the index which will be used for that purpose. Similarly foreign exchange is also very important part of certain contracts, especially if there are items to be imported, if some payments have to be made in foreign exchange, the foreign exchange rate at this point in time and this point in time for that matter even this point of time could be very different and therefore, how should foreign exchange be handled as far as the construction contract is concerned and that also brings us to the element of risk.

If we fix the foreign exchange rate for example, that if you buy something for 100 dollars or 1000 dollars and we will pay you at the rate of sixty rupees per dollar. Then we are more or less saying that no matter what happens price of the dollar during the execution of the contract, this is what the price that will be used or this is the exchange rate which will be used. The risk arising out of fluctuations in the dollar rate are being transferred completely to the contractor and the contractor has to figure out how he will handle this risk that something which we do not have to talk about it here in a legal discussion, but that is the kind of issues that have to be handled as far as the contract is concerned.

There are other ways of handling it we can say that well the amount will be in paid in rupees subject to the total not exceeding let us say 70 rupees or dollar, but it will be determined on the day of which the purchase order is made. These are some of the ways in which a certain element which involves a clear force in risk can we handle as far as the contract is concerned.

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6. Time schedule

- Start date and end date
- Total duration
- Delays
 - solely attributed to contractor,
 - not attributed to others

Illustrative example
Delay in land acquisition in a road project cannot be attributed to the contractor

Illustrative example
Consider a project where equipment erection has to precede the erection of the trusses and roofs in a factory. Now, a delay in equipment procurement and erection will delay the completion of civil works. To whom will the delay be attributed.

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Time schedule similarly the start date and the end date should be very clearly defined, which gives us the duration of the project, delays how they are handled and what would be the cost implications that should be clearly defined, because there are delays which are solely attributed to the contractor and there are delays which are not attributable to others, not attributable to the contractor. For example, if you have a situation where there is a delay in land acquisition in a road project that can surely not be attributed to the contractor. Similarly if we consider a project where equipment erection has to precede the erection of trusses and roofs in a factory a delay in equipment procurement and erection will delay the completion of civil work and now the question will be to whom will the delay be attributed.

What we are talking of here is a situation where here we have the foundation for the equipment here we install the equipment and finally, only after this equipment is installed we are able to complete the roof work. If there is a delay in equipment procurement, equipment erection inspection whatever it is we cannot complete the roof now the roof and the foundation is a civil work and is being carried out by a civil engineering agency, equipment direction typically is a mechanical engineering kind of work and it is handle by a different contractor.

Now, if there is a delay in the installation of the equipment, the civil engineering contract gets delayed and that is what we mean to say when we say that we have to find out the

reasons for the delay and to whom are the attributed, depending on to whom their attributed the cost implications will; obviously, be different in this case for example, it will be very difficult to find a situation or to justify a situation where the civil engineering contractor is held responsible and penalized for the delay and that is what we talked about in the last slide if there is an extra time there may or may not be extra cost involved.

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7. Force majeure

- What comprise (strikes, terrorist act, acts of God, etc)
- Action or relief in case of force majeure

8. Inspection

- Purchaser / third party
- Where and when
- Expenses

9. Insurance

- Coverage of risk & responsibility
- Terminology
- Liability due to accident/negligence
- Premiums – normal & extension

10. Completion of contract

Supply – erection – testing –
commissioning – trial operation –
or any other event

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Continuing with the discussion on what constitutes good contracts there has to be a clear definition on what is Force majeure now force majeure means those circumstances that may arise during the execution of the project which are beyond the control of the contractor. These include strikes terrorist, act, acts of god, earthquakes, floods etcetera and it should be clearly identified as to what constitutes force majeure. Then it is not only enough to identify the acts of the situations, in which the clause and force majeure would be invoked, but also the action or relief in case of force majeure being invoked.

Even when force majeure is to be invoked not all acts of god may come with the ambit of force majeure for example, if it is a flood now flood is an example where it is not very clear sometimes as to whether the contractor or then agency carrying out the work can be charged with the responsibility of foreseen a certain type of flood, some flooding may be expected, but flooding beyond a certain magnitude may not be expected and these are the kind of things which are very difficult to identify which is very difficult to codify and lay

down, but yes while writing contracts and writing the conditions these are the things which contract writers have to be aware of and understand what they want to do.

Later on in this discussion perhaps in class or too later we will discuss the importance of what is the intent of the contract, the intent of writing a particular clause, that intent is something which is very very important when it comes to dispute resolution. If there are clauses which do not amply clarify a certain possibility, the arbitrator or the court goes back and tries to determine what was the intention of writing that contract and that intention has to be clear, inspection is another issue which can cause a lot of disputes it is and therefore, we must clearly identify what we mean by inspection, who will carry it out whether the purchaser, or the client, third party inspection, where and when will the inspection be carried out, who will bear the cost of all the expenses, who will bear all the cost of the inspections.

As far as civil engineering work is concerned most of the inspection is actually carried out at sight because that is where the work will be carried out except for certain elements such as precast elements, which are made in the factory and then transported to site in that case of course, some inspection may be carried out at the factory where these products are being made. It has to be clarified as to whether such inspections will be at the cost of the contractor or it will be at the cost of the client, what will be the frequency of these inspections and of course, what will be the acceptance criteria and so, on and that is what we talked about will be talked about in our discussion on quality in quality control.

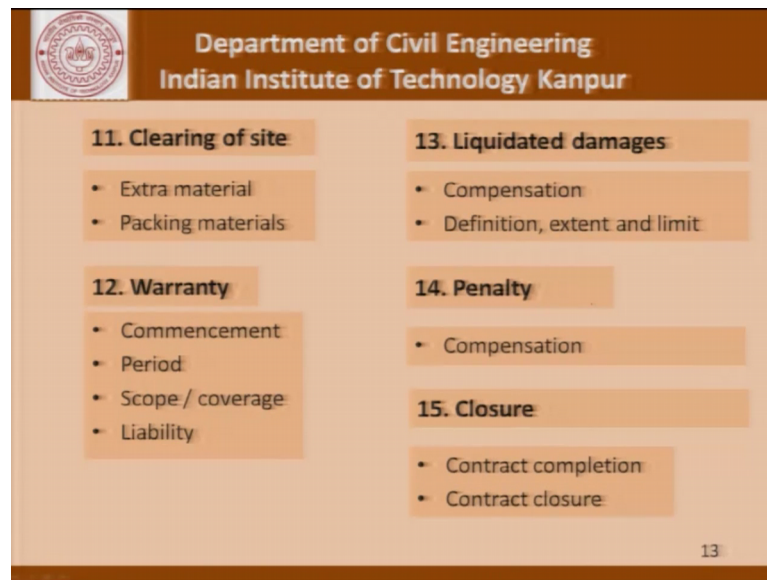
The situation as far as mechanical equipments is concerned is slightly different. In fact, there most of the inspection is carried out where the equipment is been assembled because it is virtually impossible to carry out any major alterations should the equipment have been delivered to site and it is found to have some defect or some modifications have to be made and therefore, it is important the clients engineers they visit the factory or the plant where the equipment is being manufactured. In those cases; obviously, there is a clear need to identify the frequency, the expenses and so, on, that would be part of the inspection process as far as contract management as far as the construction of project is concerned.

Continuing on similar lines we have insurance provisions which should cover the risk and responsibility the terminology liability due to accident negligence, premiums under normal and extended conditions and we come to a clear definition in terms of completion of contract. Now a completion of contract it may appear is a simple enough matter, but if you think about it, it is not really, when we see some of the words that I am going to show you now. Look at these words supply, erection, testing, commissioning, trial operation or any other event, now let us try to think in terms of an equipment which is part of several other equipments which is part of a industrial unit. Now the contract for supply of this equipment when will this deem to be completed, basically what it means is when will all the money which is due for this contract be released to the contractor or the manufacturer.

Is it at the type of supply of this equipment to the site, is it at the time of erection of this equipment at the site, is it when this equipment alone has been tested or that entire set of equipments which are supposed to become a part of a system when the entire system has been commissioned and a certain amount of trial operation has happened. Obviously, in a situation like this the supply and testing of this equipment does not mean that the entire set of equipment which is part of the system have been commissioned. If we want to hold back a certain amount of money as far as this equipment is concerned till such time as the entire assembly has been tested that has to be clearly laid down as far as the contract for this equipment is concerned.

The equipment manufacturer should know that well if I am selling this equipment or if I am coating this equipment for rupees a 100 or a 100 dollars maybe 5 dollars will come to me at a much later point in time a even after I have supplied my equipment even if my equipment has been found to be acceptable, because it is performance as a system depends on so many other things now these are the kind of things which; obviously, need to be clearly spelt out in the contract.

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Now, at the end of it there has things like clearing the site with extra material and packing materials and warranty period commencement, period, scope, coverage and liability; obviously, this warranty issue is very important when it comes to the issue of completion of contract.

In the discussion that we had just now even if that equipment has been tested and then lies in that state for let us say 6 months, 10 months, 1 year does the period of warranty of this that equipment start after that equipment alone has been tested or does it start after it the whole system has been commissioned that has to be; obviously, clearly spelt out. So, that the manufacturer knows what is the kind of rules of the game, essentially there are contracts to define the rules of the game. So, long as the rules of the game are clearly defined nobody will have any reason to cry foul and the rules of the game have to be as clearly defined as possible and once the contractor or the manufacturer or the supplier understand source rules the chances of disputes are reduced.

Liquidated damages is basically damages on account of delays there has to be a composition involved, that that amount has to be fixed, the definition, extent and the limit has to be defined, as far as a penalty is concerned, similarly the compensation in the limits have to be defined, closure also has to be very clearly defined in terms of contract closure, contract completion, financial closure and so on and we come to dispute resolution.

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15. Dispute resolution

- Mediation / conciliation
- Arbitration and related issues
- Jurisdiction – courts of appeal, etc.

A construction contract often comprises

- Contract drawings
- Specifications
- General conditions of contract
- Special conditions of contract
- Agreement
- Bill of quantities (BOQ) if applicable

In case of discrepancy, following order of preferences to be observed*

- Description of the schedule of quantities
- Particular specification and special condition
- Drawings
- CPWD specifications
- Indian Standards Specifications (BIS)

** as per CPWD guidelines under 'discrepancies and adjustment of errors'*

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Now, this dispute resolution is also very important part which must be amply covered as far as the contract is concerned, dispute resolution could include mediation, conciliation which are informal ways of addressing any this agreement and trying to nip it in the bud before it really becomes the full blown dispute, arbitration and related issues which are more close to formal judicial processes and finally, as far as courts of appeal and courts are concerned there is the jurisdiction issue and that something which is very very important, because sometimes the manufacture of an equipment happen somewhere and the installation happen somewhere else, what courts would exercise jurisdiction over this.

In case of international contracts the situation become even more tricky and that is where it is very important to clearly spell out the jurisdiction of the court where the dispute will be finally, addressed. As far as the construction contract is concerned a construction contract comprises of contract drawings, specifications, general conditions of contract, special conditions of contract, the agreement, the bill of quantities if applicable and so on. And in case of discrepancy the following order is to be observed and this is something as per the C P W D guidelines in India, description of the schedule of quantities, particular specifications and special conditions, drawings, C P W D specifications, Indian standard specifications which is the BIS specifications and this order or hierarchy of documents must be clearly identify.

Because at the end of it the contract comprises several independent documents to contract drawings, specifications, general conditions the bill of quantities and so on, from the general and the most generic principles it comes to very specific provisions, indeed as far as the hierarchy is concerned those items or those places where the specific item for that particular project is clearly defined or specified they have to see this over more generic provisions that exist in normal standards. So, that is something which is laid down for one contract to another and could be different. So, basically the contract should have a list of documents which constitute the contract which are part of the contract and also the hierarchy which is going to be followed because in spite of all good intentions in spite of all effort to ensure that the provisions in different parts of the contract the different documents in the contract are in sync with each other there is always a possibility that something could be left out.

Especially in this day of cut and paste through with this we come to an end to our discussion today as far as the essentials of good contracts are concerned and from this point onwards we will move towards basic contracting and then going to dispute resolution and so on, as far as legal issues in construction management is concerned, here is a reference which you might find useful and I look forward to seeing you in a subsequent lecture.

Thank you.