

Safety in Construction
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Lecture-20
Contractual Provision on Construction Zone Safety
A Case Study on Construction Safety

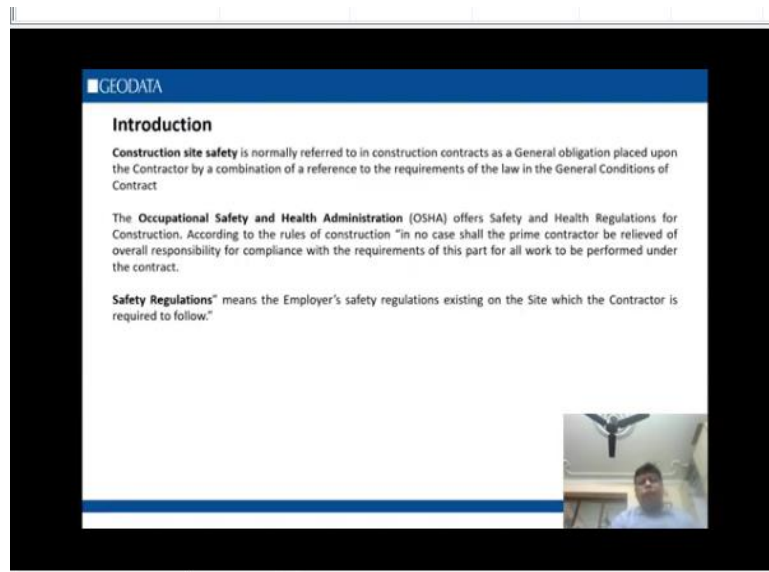
It is my pleasure and of great satisfaction that IIT Delhi has given me an opportunity to share my experience and the knowledge with you all in this platform. Let me introduce myself by profession, I am a civil engineer and active safety expert from ministry of road transport and highways. In my career I worked in many of the highway projects done by National Highway Authority of India ministry and few of the multilateral funding agencies like Asian Development Bank.

At the same time, I also worked in the various projects as the contract expert which is getting implemented on the EPC mode. Here I will present the contractual provisions on the construction zone safety. With this dual kind of experience, I have been able to see the various clauses of the contract document which are presently used to bind the contractor to enforce the construction zone safety at site.

But at the same time if we see the other sides of the coin the contractor is always trying to find some of the means to how to delay the proceedings of the construction zone safety which is the paramount important for everyone. So, we have to strike a balance. Here I will present the various provisions given by the FIDIC conditions of the contract and the very important few important clauses considered by the ministry while preparing the standard document of the EPC.

And also, I will try to present some of my gut feelings, some of my recommendation or consider the suggestion of how we can make the contract more lucrative for the contractor to impose the safety provisions at site.

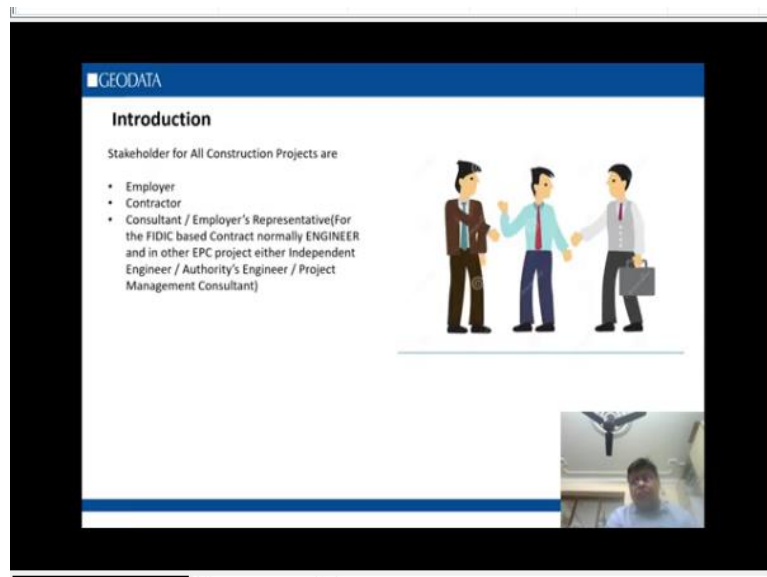
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Let us start with the definition of the construction site safety is normally referred in construction contract as a general obligation placed upon the contractor by a combination of reference to the requirement of law in the general condition of contract. OSHA the occupational safety and health administration offers the definitions according to the rules in no case shall the prime contractor be relieved of the overall responsibility for the compliance with the requirement of this part for all work to be performed under this contract.

And the safety regulation means the employer's safety regulations existing on the site which the contractor is required to follow. Now the question comes what is safety? Safety is everything; it starts from the very small things of keeping a live wire open to the extreme things where it resolves a fatality or a death. We need to understand that the safety is mostly the awareness of the people. If all the stakeholders are aware of their duties and responsibilities, we will surely thrive to meet our target of zero fatality at sites.

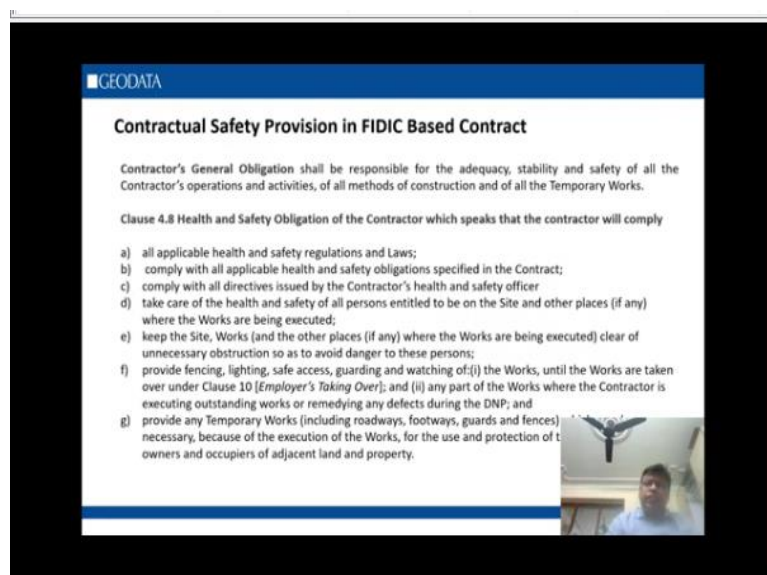
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Now we need to understand the stakeholders. If we see the various conditions of the contract or if we see the definitions of the contract, it shows that the contractor is responsible to maintain entirely the site safety; yes it is true but who are the other stakeholders of the project? It is the employers and the consultant who was the employee's representative at site. For the FIDIC the employee's representative is known as the engineer and for the EPC projects either they are called independent engineers or the authority engineers or the project management consultant.

Although contractually, it is the responsibility of the contractor but as a major stakeholder of the project the employer and also the employer's representative has the major role to play on to ensure the safety at the sites.

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Let us see what the contractual provisions are given in the FIDIC? Before starting of the FIDIC provisions of the contract will go through the general conditions or the general contractual provisions which we impose on the contractor, where the project is getting executed at that country all the kind of level laws, all the welfare means, all the personnel's welfare act are already involved in the contract.

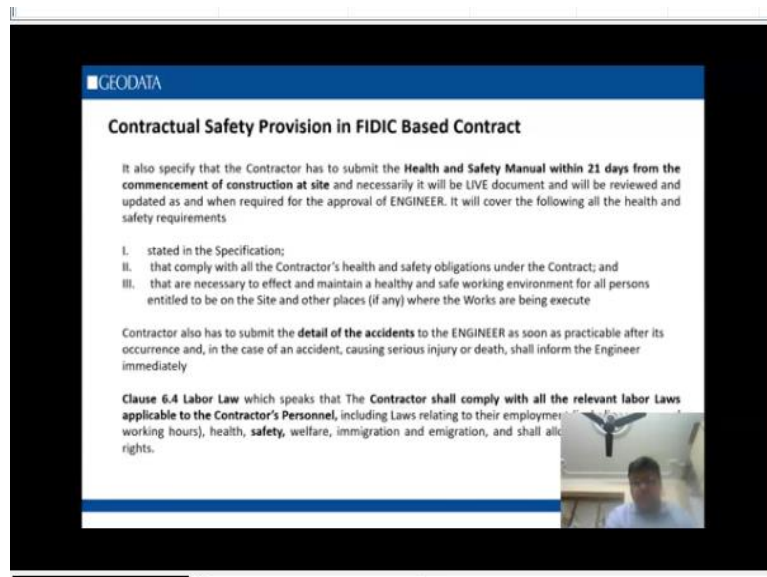
So, the contractor has to follow all this statistical requirement like minimum wages act contractor labor act, handle of hazardous waste, using batteries how they will be working, how what is the standard procedure for using the heavy machineries and everything. So, I do not I think that we'll elaborate again. So, this is in general all the contractor has to follow the statutory requirement of the projects at the country where it is getting executed.

Now very specifically if we see what is the general obligation of the contractor is? It is the responsibility of the contractor to provide adequacy, stability and safety of all the contractor's operations and activities, of all methods of construction and of all the temporary works. So, the contractor is responsible for everything of what is going to do at site. Clause 4.8 health and safety obligations of the contractor speaks that the contractor will comply with all health applicable, health and safety regulations and laws, what I just spoken to you.

Comply with all applicable health and sector regulations specified in the contract, that is the statutory requirement again, comply with all directives used by the contractors health and safety officer, take care of health and safety of all personal entitled to be at site, keep the site works clear of unnecessary obstruction so as to avoid danger to this person, provide fencing lighting safe access, removing all the works which is getting executed but still at outstanding and remedying any defects during the defect liability period.

Provide any temporary access like roadways, footways, guards, fencing which may be necessary because of the execution of the works for the protection and use of the public.

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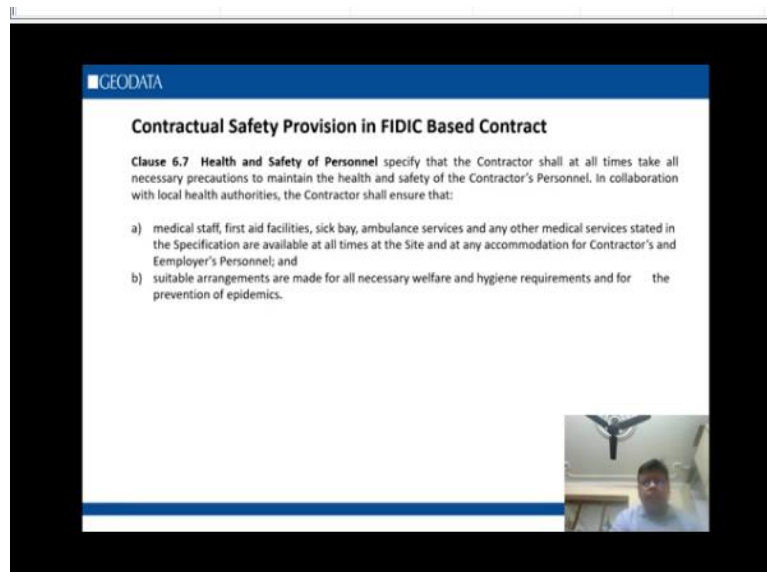


It also specifies that the contractor has to submit the health and safety manual within 21 days from the commencement of the construction site. Here one important thing is that this document is a live document, please note. This document will be a live document and will be reviewed and updated as and when required and it has to be approved by the engineer at site.

So, at because this document is applicable from day 1 till the end of the project that is the end of the default liability period. So, the various requirement come and the contractor has to update that material. Secondly, contractor is also defined how the contractor will deal in case of any fatalities or accident, based on the severity the contractor will let the engineer knows as practicable as soon after its occurrence.

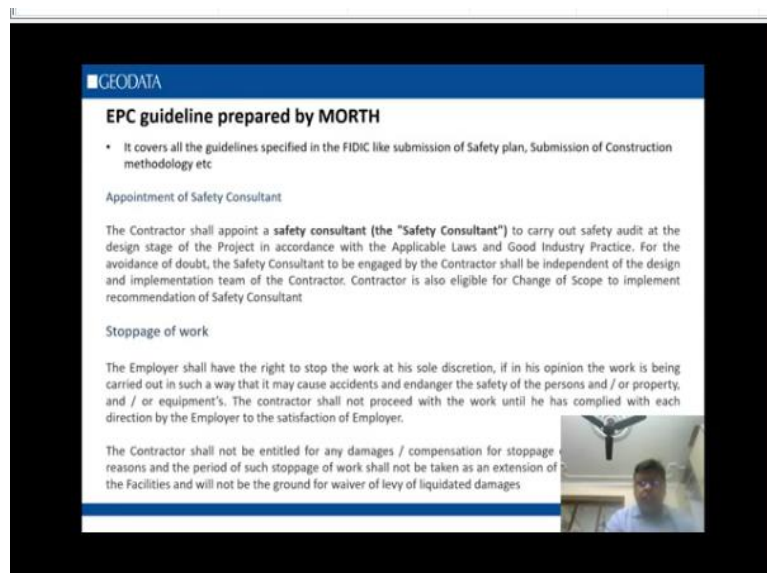
And in case of accident-causing serious injury or death it will inform the engineer immediately, so that all necessary precaution, all necessary arrangements can be taken place.

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Clause 6.7: Health and safety of the personnel specify that the contractor shall at all times takes all necessary precautions to maintain the health and safety of the contractor's personnel in collaboration with the local health authorities. It should make that the contractor shall ensure the medical staff, first aid facilities, sick bay, ambulance service or any other medical services stated in the specifications are available at site at all the times and any accommodations for the contractor and personal has to be achieved.

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So, if we see that the FIDIC condition of contract gives or covers almost everything, but if we compare the EPC guideline prepared by ministry it has shown some kind of improvement or on me it is my opinion that it has specified very important conditions to make the contract more in line with the requirement and you know this EPC guideline is prepared by the ministry as majority of the road projects are getting executed in that EPC mode of execution.

And they have developed this document to streamline the process to make a document standard. The first point what I want to explain that is the appointment of the safety consultant, it speaks the contractor shall appoint a safety consultant to carry out safety audit at the design stage of the project in accordance with the applicable law and good industry practice.

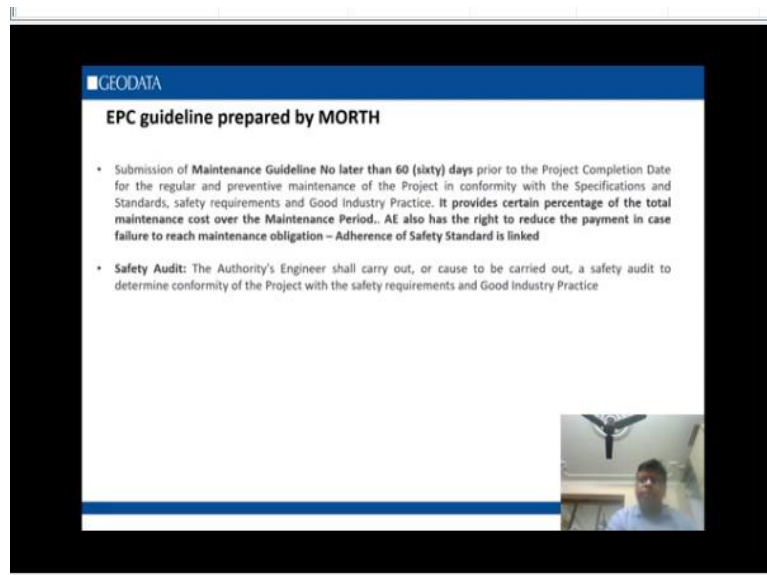
The most important thing that the safety consultant to be engaged by the contractor shall be independent of design and implementation team of the contractor. So, they are the basically the third party, they will see the safety requirement outside of the contractor's purview and can recommend and at the same time the contractor should not complain of this because if the safety consultant has recommend something which is outside of the scope of the contractor, contractor is eligible for the change of scope.

So, the contractor has no place to try that this is an extra cost or extra burden for them. This EPC mode of contract again is very specifically or empowered the authority's representative to work on behalf of the authority in case he finds the condition is not conducive at site or it is unsafe. Based on the authority's engineer's recommendation, employer can stop the work at his own discretion.

In case it may cause the accident and endanger the safety of the persons working at site and the contractor cannot proceed with the work until he has complied with each direction by the employer to the satisfaction of the employer or in the other ways employer's representative. Again, it has linked with the contractor's payment if the project got delayed, if the project got stopped it actually pinched the contract because that the more delay is the more loss or the more expense to the contractor.

And the contractor in case it is the project got hold or came into halt because of the unsafe working conditions, they are not entitled to get any damage or compensation, they are not entitled to get the extension of time and they are not getting any ground for the waiver of leaving the liquidated damage because of the delay.

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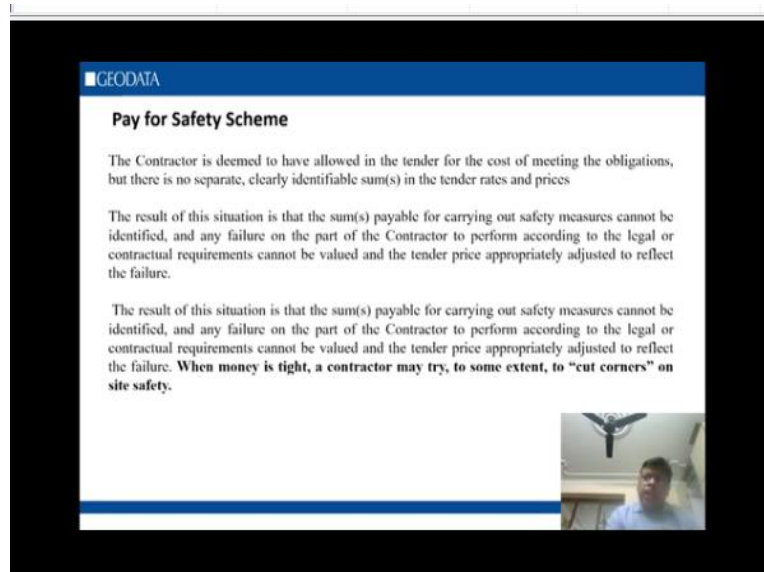


Thirdly, it speaks about the submission of the maintenance guideline prior to the project completion date which is 60 days prior to the project completion date for the regular and preventive maintenance of the project. It has also empowered the authority's representative that the authority engineer has the right to reduce the payment in case the contractor fails to reach the maintenance obligation.

If we see the payment schedule, it speaks that every year certain percentage of the maintenance part will be paid to the contractor and at any case authority engineer can link this payment with adornings of the safety standard. Fourthly, the authority engineer shall carry out or cause to be carried on a safety audit in a periodical manner almost in a every month to determine the conformity of the project with the safety requirement at good industry practice and can link this payment.

And in this safety audit they can actually they have to try to stop the work in case they found the project is not conducive or in the maintenance period they can link the maintenance standards with the safety. So, these are the very important few guidelines given by the ministry.

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So, now I will share some of my experience and some of the observations I have done, I have seen while I worked as a safety expert and also as a contract expert in the various projects. So, in one way the employer wants to bind the contractor so that they can ensure the zero fatality at the site and in the other sides of the coin the contractor always try to find the means of how the safety things can be delayed.

Because you know that the authority engineer during the safety visit, during the site visit, in the joint inspection they have given the list of the unsafe conditions at site which is very minor, may be very minor is or keeping alive or that case (13:45) is not there something like that, but at the same time the contractor because every time that authority engineer cannot stop the work because it is against the because you have to understand that importance of the timing also.

So, and the contractor takes this advantage, they play with this and delaying the things to the extent possible or just meet the safety requirement or may not be 100%, maybe 70 or 75%. So, there is a gap between the cup and the lip. So, what exactly required at site and what exactly happened at site. So, in my opinion we need to modify some of the contract clause to strike the balance.

So, one of the things that comes to my mind that is the pay for the safety scheme. If we see presently the contractor is deemed to have allowed in the tender for the cost of meeting the obligation of the safety standards, but there are no separate or clearly identifiable signs in the

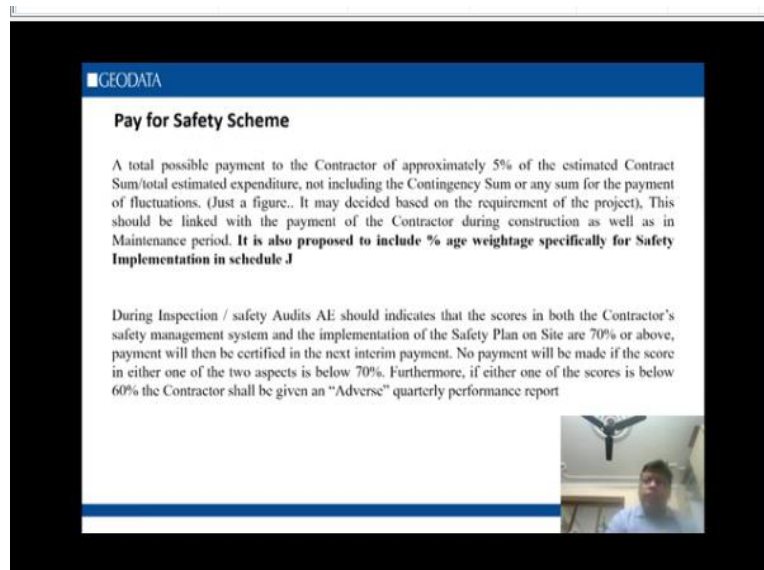
tender rates and prices. What exactly happens to this when the authority engineer finds some of the unsafe conditions, they cannot quantify it.

And it is not linked with the payment. Payment schedule that because if you see the EPC contract is having the payment schedule how in which aspects what kind of percentage will be provide, will be paid to the contractor. So, when there is no separate safety budget or safety payment percentage, so it is very difficult for the authority or the authority's representative to quantify the failure of the contractor.

So, what happened to this? Contractual requirement cannot be valued and the tender price cannot be adjusted to reflect the failure. The result of such situation happens is more prevalent we have seen during this Covid period when I have seen many of the contract has been provided, has been awarded to the contractor with the below of the threshold price of the employer.

So, we can see there is a very extensive competition between the contractors to win the project and in industry (16:06) the money is tight and when the money is tight the contractor may try not may try it will always try to some extent to cut corners on the side safety.

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That was one of my realizations of one of my understanding and experience at working. So, in my opinion if we have a separate budget of the safety say 5% or 3% or 4% whatever the percentages best of the importance of the project based on the site of the project. This can be

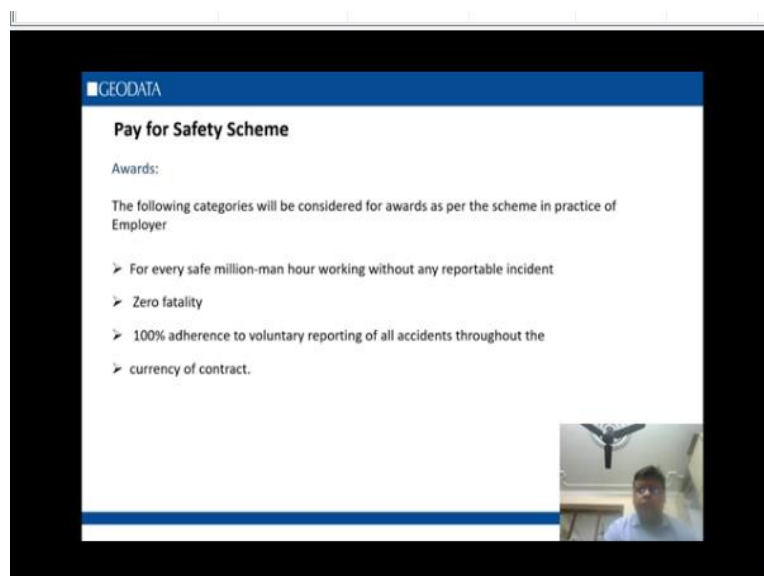
a safety budget and in the payment schedule we can give some percentage of this safety budget as a payment.

So, the contractor will be happy to ensure the safety requirements at the site and at the same time it is easy for the authority's representative to quantify in case of a failure. So, that is what I propose to include this percentage what is specifically for safety implementation in the schedule of the EPC agreement. Now if we come to the maintenance period, we have seen that the authority engineer is having the power to reduce the payment if the contractor fails to meet the application, it can be safety issues as well.

Again, we propose that during the safety audits when authority engineer will have a joint inspection, they should give some markings of the black spots identified at the sites and overall marking, if the overall marking, if the overall compliance contractor is some percentage maybe 70 or 70% or above payment will be certified in the next interim payment and no payment should be made if the score of the contractor is below 60 or 70%.

So, that can be labeled as a below performance and we can delay. So, again I am telling you again we can actually start quantifying the things, quantifying the payments. So, it can be easily applicable at site and the contractor is also will not try to avoid to maintain the safety standard they will come forward to meet the requirement because they will be getting paid for this.

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So, this and also, I propose to give some award in case the contractor is complying on this safety scheme. In the EPC contract there is a provision of the bonus if the project is completed early before schedule. At the same time, we propose if the contractor is adhering the safety standard like zero fatality of the site, 100% adherence to the voluntary department of all the accident throughout the project.

How many million manhours they could have saved in a reportable incident? So, if the contractor we can have a more list of giving the safety in the priority and we can give some kind of awards and cash bonus on this. We are almost at the fag end of the discussion because we have the time limitations here and it is the very generic discussions what I have meant.

The projects can be not only the highways project is, there the project is in metro, project is in tunnel and every project is having its own safety issues, safety kind of standards. So, we expect to meet with you all again soon and probably it will be another forum, so we can discuss and exchange our ideas so how we can take these contractual obligations to a more elaborate terms which actually suits the contractor and suits the requirement of us to get the zero fatalities at site, until then thank you and stay safe. Thanks.