

**Vallurupalli Venkata Rama Seshadri Rao**  
**Memorial Fifth Annual Oration**  
**28<sup>th</sup> February 2015**

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*Delivered by*  
*Padma Vibhushan Dr. E. Sreedharan on Dt:28-2-2015.*

Dr. Nageswara Rao, Professor Nirmal Chand, honourable members of the Management, respected members of the faculty and dear students.

I consider it as a great privilege to be invited to give the 5<sup>th</sup>VVR Seshadri Rao memorial lecture and I thank the Chairman and Members of the Management committee for selecting me for this very prestigious duty. I consider it as a very great honour and also recognition. Normally such memorial lectures are given by reading out a written speech. I must apologize to you; I have not come prepared with a written speech. I would like to speak to you from the bottom of my heart straightaway, particularly to the students assembled here. I am sure when the management thought of inviting me for delivering this memorial lecture, the main intention would have been to present me before you all so that whatever I say or whatever my background or whatever my achievement, becomes an inspiration, and a motivation to all of you. So from that angle I would like initially to share with you my own experience of how I managed two of the most important infrastructure projects of this country and what are the qualities, what are the ethics? What are the values which helped us to achieve these impossible tasks?

These two projects are the “Konkan Railway Project” and the “Delhi Metro Project”.

Konkan Railway as you are all aware is a 760 km long broad-gauge line from Bombay to Mangalore along the west coast of the country which is called the Konkan region. That is why the project has been called Konkan Railway Project. This railway line passes through one of the most difficult terrains ever encountered in the history of railway construction in our country which will be evident to you when I mention to construct the 760 kms railway line as many as 93 tunnels for an aggregate length of 83.5 Km. had to be bored through some of the very treacherous soil conditions along the west coast. Further as many as 149 major bridges across many estuaries and rivers had to be constructed for this line.

Note, this is a country which is highly undulating on the western side is the mighty Arabian Sea and on the eastern side is the majestic “Sahyadri Hills”. And part of these Western Ghats go right up to the sea shore in many areas, creating a very undulating country that is why so many tunnels had to be constructed. The longest tunnel on this line is 6.5 KM near Ratnagiri, there are Nine (9) tunnels which are more than Three (3) Kms. in length. The longest bridge is more than Two (2) KM. across the “Sharavati” river near Karwar. The highest viaduct near Panval, it is

called the Panval viaduct which is the highest viaduct in the country so far. It has piers as high as Qutub Minar which is almost Sixty Eight (68) Mts. high. You can imagine the difficult nature of the terrain. It was not merely the physical challenges involved in constructing the line but the biggest challenge was raising the money for this project. Usually all Railway lines in this country are constructed with government funds made available through yearly Railway Budgets. Konkan railway was such a huge project and the railways could not find funds for this project. It was therefore decided that this railway line would be constructed by almost on a BOT (Build, Operate and Transfer) route, with the government giving only one third of the cost of the project and two third of the cost had to be raised from the market. For this purpose, a special purpose vehicle, a new company was formed “The Konkan Railway Corporation” and I had the privilege of being the first Chairman and Managing Director of this Corporation.

Now looking back, I feel the physical challenges in constructing the line was not so great compared to the difficulties in raising money from the market for this project. In spite of all that it was possible to complete such a huge project of 760 Kms. within a very very short period of 7 (Seven) years. That is the brief story of the Konkan Railways.

Now coming to Delhi Metro many of you must be aware that Delhi Metro is not the first Metro of the country. That distinction goes to Calcutta where a Nineteen (19) Kms. long metro line, mostly underground, was commenced in early seventies 1970s and finally completed in 1996. I had the privilege of being associated with the “Calcutta Metro” also in the initial stages of its Planning and Designs. In fact, I can take pride in that, all the civil structures of Calcutta Metro, were all designed by me when I was the Dy. Chief Engineer, Designs, Calcutta Metro. But the story of Calcutta Metro or the experience of the Calcutta Metro was not a very pleasant one either for the city or for the country as a whole for the reason, these Nineteen (19) kms. long metro line took Twenty Four (24) years for completion and the cost went up by Fourteen (14) times. That gave us the lesson that the Delhi Metro cannot be constructed in that fashion. Calcutta metro was implemented as a departmental work by the Indian railways. Even today, Indian Railways are in charge of the Calcutta Metro and metro expansions in Calcutta city are still being managed by the Indian Railways. Therefore when we took up Delhi Metro it was decided that we would follow an entirely different route for the completion of the Delhi Metro and for that purpose a special government company was created owned 50% by Govt. of India and owned 50% by Govt. of Delhi, it’s a 50-50 partnership, in Delhi Metro Rail Corporation. I’ll be referring this as DMRC hereafter.

When DMRC was created and the Govt. sanctioned the first phase of Delhi metro, the Govt. could not find a suitable person to take charge of the Metro. The Govt. even finalized the loan arrangements with Japan through the then JBIC (Japanese Bank of International Co-operation). The loan arrangements were finalized, but they could not find a suitable person for heading the Delhi Metro. It was at that time I was just completing the Konkan railway and the government asked me to take over the Delhi Metro as well.

When I took over Delhi Metro there was no office, there were no staff, there was not even a chair to sit. From the green, from absolutely nothing, we had to build up the organization. Fortunately

I had one chamber in Rail Bhavan, as the Chairman of Konkan Railway Corporation. I started working from that room, for the Delhi Metro, we immediately purchased an office block, an office space, quickly moved into that temporarily and built up the organization fast. When the phase one of the Delhi Metro was handed over to Delhi Metro Rail Corporation (DMRC) the mandate from the government was to complete the Phase – I in Ten (10) years time. When I took over I decided that Delhi, the capital of the country cannot wait for another Ten (10) years to have the first phase of the metro.

So the first decision I took was to compress this implementation period from Ten (10) years to Seven (7) years and I am happy to inform you the first phase of Delhi Metro covering Sixty Five (65) Km. and costing Rs.10,500 crores (Rupees Ten Thousand and Five Hundred) was completed not in Seven (7) years but in Seven (7) years and Three (3) months. That means Two (2) years and Nine (9) months ahead of the schedule the Government had set, for completing the first phase.

Seeing the success of the first phase the government sanctioned immediately the second phase consisting of One Hundred and Twenty Four (124) Kms. of Metro line and the Government set a target of completing that in Five (5) years. time to DMRC. But the compulsions of the Common Wealth Games being staged in Delhi in October 2019 mandated that the second phase could not wait for Five (5) years it had to be completed in Four and a Half Year (4 ½ ) years itself then only we can beat the deadline and be ready for the Common Wealth Games. DMRC was able to complete the One Hundred and Twenty Four (124) Kms. of Metro line in Four and a Half (4 ½) years time. In fact, the last line, the line No. 6 (Six) of Delhi Metro, which is called the “Badarpur Line”, was commissioned on the morning of the day when the common wealth games were inaugurated. See the precision with which we were able to finish the work in time, that too six months ahead of time.

Now of course the Third (3<sup>rd</sup>) phase has been sanctioned by the Government the Third (3<sup>rd</sup>) phase is a very ambitious project covering about 145 kms and costing about Rs.35000 crores (Rupees Thirty Five Thousand) and the works are going on. What I want to convey to the senior students present here is, both these projects, Delhi Metro project as well as Konkan Railway Project, both were accomplished by Government Agencies. One is Konkan Railway Corporation and the other is Delhi Metro Rail Corporation and being government organizations, we have to necessarily follow the Government Rules, Government Procedures and the Governmental Practices and we are also accountable to the normal Governmental Agencies such as the ‘Central Vigilance Commission’, the ‘Comptroller and Auditor General of India (C&AG)’ and the ‘Parliamentary Committees’ and the ‘State Legislative Committees’. We have a responsibility to them.

Now what is that which helped these two organizations though they are Government Organizations to achieve this remarkable feat of completing the projects in time or ahead of time and within the estimated cost. That is most important. What is that enabled us, this is what I want to share with you for you to learn, take an example, take inspiration or take motivation from what we have achieved. It was possible for these two organizations to achieve this only because

of the very unique work culture that prevails in these two organizations. I would say the cardinal pillars of this unique work culture are just four, They are: One (1) Punctuality, Two (2) Integrity, Three (3) Professional competence and Four (4) Social responsibility or social accountability. These Four (4) aspects I want to go in more detail for the senior students present here for them to imbibe the values and ethos which an engineer should have. They must imbibe these values.

Coming to punctuality, punctuality is nothing but, a courtesy that we show to others. In other sense, we value and respect the time of the other person.

I was so happy, Prof. Nirmal Chand could start this function exactly at 10.30 AM. Supposing he had started Five (5) minutes or Ten (10) minutes late, there are about nearly I am sure about Seven Hundred (700) to Eight Hundred (800) students present here, how many student hours would have been lost by just delaying this function by Ten (10) minutes. This is the importance of punctuality. For Engineers and for Managers punctuality should be a religion. It is so essential. For these two projects Konkan Railway and Delhi Metro both are rail based projects both are meant to run trains and what we realized was if you want to run our trains punctually, we must be punctual ourselves first. Everybody in the two organizations should be very very punctual.

You will be surprised to see the punctuality that has been achieved in Delhi Metro. If you go there you can see the emphasis on punctuality and its fall outs it has given to DMRC and to the Public as a whole. Delhi Metro today runs more than 3,000 trains a day and it carries almost 28 lakh people on an average day. For all the metros all over the world for them the least count for punctuality is Three (3) minutes which means if a train reaches destination within Three (3) minutes, it is considered as punctual. In DMRC we decided that we would tighten our belts right from the beginning and our least count would be 60 seconds-one minute. If a train is late by more than 60 seconds it is deemed to have lost punctuality. And as I mentioned to you we run about 3000 trains a day and in the year when I stepped down as the Managing Director of DMRC the punctuality performance was 99.7%, and see the benefit to the organization, see the benefit to the public they know very precisely when a train will come at the station, they know very precisely when they will reach the destination, they don't lose any time at all.

This is the value of punctuality and for punctuality not merely, the Trains running that was important for us, we realized that punctuality was necessary even for completion of projects on time. It was a practice both on Konkan Railway as well as in Delhi Metro and all the Metros I am supervising today, we have what is known as a reverse clock set up in the offices and important worksites, which will show exactly how many days are left for that phase of the project to be completed. If it is a tunnel site that will show how many days are left for the tunnel to be completed. In the office, it will show that phase of the project when it is to be completed in days. We call it reverse clock and the clock will automatically lose one day, as the day is over. So, this is a constant reminder for everyone, Engineers, Contractors, Suppliers, everybody, that only so many days are left for the project, that keeps everybody on their toes. You see the value of punctuality.

The other I mentioned was integrity. When I mentioned integrity, it is just not honesty or absence of corruption. If you pick up the oxford dictionary and see the meaning of integrity, it will say,

having “good moral values” that is integrity. The emphasis is on moral values. These are the two organizations where thousands and thousands of crores of money had to be spent. We realized that the money that we are spending is not DMRC’s money, or Konkan Railways money, not even the Government’s money; it is the money of the people, the tax payer’s money contributed by you and me to the Government. We have a responsibility to see that, this money is well spent, rightly spent, spent for a good cause. That is why we wanted that everyone in the organization should have very high moral values. Whatever decisions we take; it should be the correct decisions, done in a very transparent style and fashion. This is integrity, and if anybody who found not following the values of integrity, he had no place in the organization.

I had the misfortune of sacking even the financial advisor of Delhi Metro at one stage, because I suspected his integrity. Such a high value for integrity was kept up and see the effect of this. Because everybody knew that in these two organizations, things would be done in a very transparent way, in a correct way and there is no corruption, whatsoever, we were getting things done at much cheaper rate, than what is being done in Railways, PWD, or other organizations. Even today if Delhi Metro calls a tender, we are sure that the contractors would quote a price, which is less than, what they would had quoted for any other organizations, because they knew that They have no other expenses except, only their own works. This is the value of integrity.

Ladies and Gentlemen, this is one thing which every engineer should keep foremost as his aim in his professional life.

This should be a passport in your pocket all the time that your integrity cannot be doubted. If you have that reputation, that you are a very honest person, with a very high integrity, that helps in many ways. I have seen in my own personal experiences, even if you make a mistake, people will not give a wrong motive to that mistake, they will only take it as just a mistake and will correct it. There will be no other motives attached to whatever you do.

You will have the confidence and courage, to take difficult decisions if your integrity is high and whatever decision you take people will accept it because they know that this decision comes from person whose integrity is unassailable.

This is what every engineer should have as his foremost ideal viz integrity.

The third item I mentioned was “Professional Competence”. I need not tell you much about the need for Professional Competence, it is nothing but you should know very well the job that you have to do. If you don’t know it, you must learn it fast, or you get somebody who will help you to do it properly.

### ***“Gnanameva Balam”***

One scripture say Gnanameva Balam.

Our scriptures also say that “*Nahi Gnanena Sadrushasm*

*Pavitram yiha vidyate”*

I may be giving you some Sanskrit quotations; because I am very fond of Sanskrit and the importance of Sanskrit also I will come to you a little later.

***“Nahi gnaneva sahdrusam Pavitram yiha vidyate”***

There is nothing as sacred as knowledge. We also know that knowledge is also important from another angle.

You know that this must have been taught in our young days.

***“Vidya dadati vinayam”***

Knowledge brings in humility and modesty. If you know your work if you are full with knowledge, it is like a vessel full with water, It won't spill out. Whatever job you do, you should know your job very well. Now, an Engineering college of this type, this gives you only the foundation for your technical knowledge. I know in four years nothing much can be achieved. This lays a foundation, but you have to build on this foundation, your future knowledge, with experience, with observations, with reading, further reading. Your life has got to be a ***“life long pursuit for knowledge”***. Pursuit of knowledge never stops with leaving the college. Please remember that this four years only gives you the foundation, the initial push but you have to gain all the knowledge later on.

When I was introduced you have been told that I passed out from Govt. Engineering College, Kakinada. I am just an engineering graduate, a civil engineering graduate, that's all but over the years how much knowledge has been picked up through experience, through observations, through innovations.

Prof.Nirmal Chand mentioned about Pamban bridge which was scheduled to be completed in Six (6) months, which I was able to do in Forty Six (46) days. That was possible due to experience, knowledge and innovation.

Ladies and Gentleman even after you leave the college make it a practice to spend at least half-an-hour, one hour to pursue knowledge, reading magazines, reading books etc.

As you go about anywhere in the country, whenever you find anything new, from which you can get some lessons, or some experience, study that properly. Even if you go to a railway platform, if you find a pedestrian foot over bridge, there is so much to learn from that, how it has been designed, what is the philosophy behind that design or the passenger shelter, these sort of observations are required. I want to share with you a little bit from my own experience, how knowledge has got to be acquired. I mentioned to you that, I was associated with the initial planning and design of Calcutta metro. During that time when I was a Deputy Chief Engineer (Designs), Calcutta Metro. There was a tunnel seminar going on in Tokyo in Japan. You know at that time Japan has just completed the “Bullet Train Project”, the first project has been completed and they were extending the line further to Osaka and lots of tunnels were being constructed in very difficult terrains, so, Japan very correctly organized an International Tunnel Seminar and because Calcutta Metro also was going to construct many tunnels within the city. The railway

ministry decided that the Chief Engineer of Calcutta Metro should go and attend the tunnel seminar in Tokyo.

The Chief Engineer that time, who was my boss was Mr.J.N.Roy. He is no more. He wrote to the Railway ministry look here, I am the Chief Engineer, I got only Two (2) years time left to retire, there is no point, in your sending me for the tunnel seminar to acquire knowledge. I would suggest that my deputy Mr. Sreedharan should be sent because he has got another Twenty-Two (20-25) Years in the railways; he can acquire the knowledge, come back and will be more useful to the Railways.

Therefore, I was sent to attend the tunnel seminar. When I went to attend the tunnel seminar, three (3) days the seminar was there, I knew that I had the responsibility to design the tunnels and underground stations for the Calcutta Metro. I decided to stay on for another Three to Four (3-4) days more in Tokyo to learn the subject. In those days it was very difficult to get permission from the Government of India for any foreign tour or any other means for staying abroad so I wrote to my own nephew who was a doctor in America at that time requesting him to send money for my Four (4) days stay in Tokyo, got that money in time and stayed on for Four (4) days, went to the Japanese Metro offices discussed with the people then collected the drawings / design papers. All these things I collected within Four (4) days time and Ladies and Gentlemen these Four (4) days stay, additional stay in Tokyo enabled me to design all the underground stations and the tunnels of Calcutta Metro. What I want to convey is any opportunity you get to get more knowledge do not miss that opportunity. It will come to help you at some stage in your professional life. It will be of very great use to you. Please remember this, this is the technical what I said professional competence required, and then if you don't know the things you should not hesitate to learn from your superiors or from your colleagues.

When Delhi Metro was started, the Country never had any experience or expertise for planning, designing or implementing a world class metro. We never had it. Calcutta Metro was the only example we had in this country, which was a wrong example to follow. We did not hesitate to engage international consultants to help us in the matter initially

But remember we engaged consultants only for the first phase of Delhi Metro. By the time the first phase was completed we learnt all the tricks of the trade from them. We never wanted them for the second phase or third phase and we are now constructing more than Ten (10) metros in the country and we are able to manage today on our own. Delhi Metro is able to give the required expertise. They can hold the hands of any metro that is coming up. In the process so many metros are coming up all the metros in the country today. It is only the first phase we had to engage the foreign consultants. What I did was, when the consultants were brought, I decided that my own officers will be seconded to them in the design office, in the planning office, so that we learn everything from them initially. Today I told you that all the metros coming up in the country, 10 are under construction, another 10 are being planned, including a metro in Vijayawada and Visakhapatnam. For all these metros the detailed investigations, studies, preparation of project reports are all been done by DMRC with the experience we have gained in our first phase. This is how you should acquire the knowledge. This is very important.

And the forth thing is ‘Social Responsibility’ or social accountability. Every engineer should realize that he was very fortunate to enter into an institution like this, where he could learn many things. He has spent fees no doubt but the amount of knowledge that you have learnt from this institution is something fantastic which has given you the base or the foundation for build up your knowledge later on. You should know that what the society has given you in the form of helping you to be in this college for four (4) years, you have a duty to pay back to the society later on. That is what I would call a social accountability. In DMRC and Konkan Railway, our first commitment to the social responsibility was to finish the project on time, to finish the project within the estimated cost, that is our social responsibility.

I mentioned to you that we never felt that money we are spending was government money or the DMRC’s money, it was the money from the people, and it had got to be wisely spent. That is a social responsibility. The other is when we execute a project, do it in such a way that, it gives minimum inconvenience or dislocation to the city or to the people.

Today very extensive metro construction activities are going on in Delhi Metro, but people do not feel it at all. People are not put to any inconvenience, because of huge activities going on in the city it’s our job. On the other hand when Calcutta Metro was being constructed, I told it took Twenty Two (22) years for completion. When the Calcutta Metro was being constructed, there was such a lot of dislocation. The central avenue which is called Chittaranjan Avenue was cut open and kept for years and years, causing so much of hardship and difficulties for the public. We don’t allow it. We do it in such a way that, as I told you, minimum inconvenience to the people and maximum help to the people concerned are ensured. For constructing the Konkan Railway, you will be surprised to know from me that we had to acquire lands from 40,000 land owners. We decided that this land should be acquired causing minimum, not only inconvenience, minimum mental tension or mental agony for the people concerned. For that we were contacting them personally, helping them, convincing them, why this project was so important, how it was going to help the whole region, how it was going to help the whole nation, convincing them and took over these without any mental agony to the people concerned and it was a great achievement that 90% of the lands were taken over for our construction within the first 12 months of starting the construction. It was possible because we went out of the way to see the people were helped. For example, If somebody’s house was to be acquired, we used to contact and find out, what was the size of the family, what would be his difficulties and we decided that till he was able to find another accommodation, we would find him a place to shift. We would pay the rent for that place and see that he was conveniently shifted. Not only that, we allowed him that when his house was demolished, all the items which could be retrieved like doors, windows, tiles, bricks, we would tell him, if he wanted to construct another house, we would carry this for you, to your new place. These were all in addition to the compensation, we gave them.

This sort of attitude, that when we acquire a land, man has got to be helped, this is a social responsibility. Any of you go to Delhi, if you see the way, the Delhi Metro is being done, or if



you go to Lucknow and see how the Lucknow Metro is being done or for that matter Kochi Metro, any metro we do it in such a way that we barricade properly, we don't allow the dirt and nuisance from the work sites come on to the roads. The roads are cleaned, every night. The roads are kept clean so that people are not having any dust nuisance and we see that the machinery or plants which create a lot of vibration and noise, they are not allowed to work in the night, only during day time. We go out of the way, not only that we usually in Delhi Metro and other places, when before we start a work in a particular area, we used to get the people of that area together, the representatives from media, representatives of people and talk to them, this is the work, that we are going to do in your area, this will be the problem, you will be facing, how we can help you to see that your problems are reduced, have a one to one dialogue with them, and many suggestions good suggestions will come, some of the suggestions, we can accept and implement. If we are not able to accept it, we used to convince them why we cannot accept it, take them along with us and see that the works are completed in time.

It is to the credit of DMRC or Konkan Railway, that not even a single day or single area, work was stopped because of public resistance. It is only because we were able to carry them with us. This is social responsibility and you must see the wider picture of our social responsibility by executing projects of this type. You take Konkan Railway for ex. Konkan Railway has reduced the distance between Bombay and Cities of the south by more than Six Hundred and Fifty (650) Kms. It is not a small thing. Rail distance has been reduced by Six Hundred and Fifty (650) Kms. Travel time has been reduced by Twelve (12) hrs; I made a small calculation for a lecture I gave in some other forum. We found that, for the whole Konkan Railway we spent only Rs.3500 (Rupees Three Thousand Five Hundred) crores, and the people. I am only talking of the people of Kerala who are situated in Bombay, Baroda, Ahmedabad and those areas. I found that the people of Kerala alone have saved more than Rs.20,000 (Rupees Twenty Thousand) crores during the last Seventeen (17) years in their travel cost, because of this Konkan Railway, See what benefit it brings to society. Take the case of Delhi Metro, as I mentioned to you, presently we are carrying about 2.8 Million, Twenty Eight (28) lakh passengers on the system on an average working day. This would mean that about Two (2) lakh vehicles are off the road in Delhi. Delhi Metro is performing the transportation duty of another Two (2) lakh vehicles along the same corridor. Just imagine, what is the benefit to the city, two (2) lakh vehicles off the road. It also means about two (2) lakh tonnes of very precious fossil fuel is saved for the country every year. Every year so much is the saving because Delhi Metro is on electricity, it does not use diesel or petrol and Delhi Metro is preventing about Fifty (50) tonnes of pollutants being let into the air every day.

These are all social benefits coming out of this project of this type.

And most important what we found was Delhi though it is a capital city, has got a very notorious reputation for road accidents and road fatalities. On an average in Delhi city, there are about 5 to 6 people getting killed on the roads and about Fifteen (15) to Sixteen (16) people getting injured on the roads.

The Indian Road Research Institute did a study at the instance of Japanese Govt. who were funding the Delhi Metro to find out what were the social benefits of DM. They came to the conclusion that by DM carrying 2-8 lakh passengers everyday by rail, very safely, very comfortably on time and with great reliability, it is preventing about 300 people being killed on the roads every year. Just imagine what the benefit of the Delhi Metro is. That is going to happen when all the other metros are completed in the country.

These all are multiplier effect, apart from the direct social benefits I had talked about. As Engineers, we have a responsibility to see that who we enter our service; we have to perform our professional duties, to the benefit of the society. It is not merely for earning money, or getting promotions, or getting a posting at the place you want that is secondary. Important thing is what service we can give to the society this is very important. Whenever you do any work that should not be with a view to get personal benefits.

A particular sloka from Bhagawad Gita comes to my mind at this stage.

***“Niyatam Samgharahitam Araga Dveshatha Kritam. Aphala Prepsuna Karma, Yat tat Swattvikam yuchyathe”***

I do not know how many of you may know Sanskrit, I had the opportunity of being a Sanskrit student right from my young days. It only means, what is a virtuous duty, what is a virtuous work that you have to do and how it is to be done. “Satvik work”. What is called “satvik” is a Sanskrit word meaning virtuous. It only means, Niyatam - that means what has been ordained, what has been given to us, what has been entrusted us. Samgharahitam means without great attachment to the work.

*“Araga Dweshathakrutam:.* Araga Dweshathakrutam means you do your performance without any malice towards anyone or without any anger against anyone. One thing is very important. When you perform your duty don't have any malice towards your colleague or anybody else or your superiors or even people around. Then “*abhala prepsuna*” without expecting any return out of it, when I say without expecting any return I do not mean that you do not take your salary. You take your salary which is meant for you. But you should not have the attachment for the fruits of that particular action. If you do your work in that fashion then it is a “satvik work”. The word “satvik” has got a great moral for every engineer. There is also another sloka from Bhagavad-Gita.

I am talking from Bhagavad-Gita because this is one text the value of which our nation has not realized. We think that Bhagavad-Gita is a religious text. It is not. It is an administrative gospel, I would say, it is a text which gives everyone how to perform his duty, how to do it without getting too much attached to your work, how to do it without expecting too much out of

that work, how to perform, how to maintain your relationship with your neighbors, within household, in other words whatever is required for human life, this Bhagavad-Gita gives.

On the importance of Bhagavad-Gita I came across a statement of Mahatma Gandhi, which I should definitely read out to you. Gandhi has written in his biography when doubts haunt me, when disappointments stare me in the face when I see not one ray of light in the horizon, I turn to Bhagavad-Gita and find words to comfort me and I immediately begin to smile in the midst of overwhelming sorrows. It is exactly what helps you in Bhagavad-Gita. In Delhi metro every executive who joins Delhi Metro, is given a copy of Bhagavad-Gita first. I started that practice. He must go through it and I insist on them to study Bhagavad-Gita, not just read through but must study, understand the meaning, imbibe the message and practice in your daily life. I do this wherever I work. Kochi metro everybody has got. Wherever I am the in charge I give the copy of Bhagavad-Gita because I feel this is one text book which will guide you properly in every situation that you face, and in occasions like this I always exhort the Principal of the College concerned, you may be teaching them all subjective knowledge such as Physics, Chemistry, Mathematics, Hydraulics anything, but it is also necessary to teach them the fundamentals of how to deal with the problems in life. I think the best thing is teach them Bhagavad-Gita. Here also I would request the concerned, at least one hour a week, encourage the students to have a copy of Bhagavad-Gita, ask them to read it properly, understand the meaning and start practicing it. The whole nation will change, if this is followed. So that is why I am quoting from Bhagavad-Gita very often.

When you perform your duty how do become a virtuous performer.

That is given by

***“Muktha Sangho Anaham Vadi drityutsaha Samanvidaha, Siddi Asidyo Nirvikara, Yakartaha Satvika Muchyate”***,

He is a virtuous worker, who does perform his duty, “Muktha sangha” without any attachment ‘anaham vaadi’ without taking pride that I am doing everything, I am achieving this thing etc. Atyutsaha samanvidaha / doing with lot of enthusiasm. With enthusiasm and with lot of diligence you have to do your work. Siddi Siddiyo Nirvikara whatever result comes out of it whether it may be favorable, not favourable, you are not perturbed by that. Such a performer is called Satvik performer. Don’t you think, everyone of you would like to be a satvik performer in your professional life? In that case please start practicing these virtues. It is very important. As I told you the aim in life is not merely to get possessions, promotions or earn lot of money. That is also necessary I am not saying that but most important thing is what type of character you have. What service you are rendering to the society? What is the type of role model you are to your own children, to your own family members? How you are performing yourself that is very very important.

Apart from these things there are two, three important subjects I want to touch for the senior students present here. One is the importance of character, importance of conduct. In our young days, we all learnt that “the crown and glory of life is character”. It does not require any money to develop good character, good habits. It does not require any extra expenditure, any extra effort, why can't we start picking up this, by start practicing it.

This is all the more necessary because you will be the role model, be examples to the next generation. For your own children you have to set the example right now onwards.

The other is your health. I must caution you an engineer's life is arduous, highly demanding, demanding on your energy, demanding on your stamina demanding on your health. You must have good robust health as an Engineer. Otherwise you won't be able to perform your duties properly. This is one thing I used to insist very much in the two organizations Delhi Metro as well as Konkan Railway. Every engineer should be very very, healthy and should have good health. I would like to share with you a secret, Delhi Metro is one Government Organization whose medical bill is the lowest of similar organizations. One of my colleagues is sitting here you can ask him the importance of having good health. I always emphasize on that and how do you get good health. There are only three areas you have to be very particular or you have to be very cautious about. One is food, good balanced nourishing food in moderate quantities is very important. I want to stress moderate quantities of food intake. The other is adequate sleep. This is where I find all the modern, later generation of students lack very badly. They tend to burn mid night lamps, go to bed late, get up late. The old dictum of early to bed, early to rise is so important. You get all the time that you need if you practice this. Don't mistake by sitting late in the night you are getting more time. By getting up early you get more time. Have those good habits. That is all what is required and adequate sleep. I mentioned to you we need minimum Seven (7) to Eight (8) hours of sleep that you must get. When you have time don't waste it in watching the TV, watching serials, cinemas and things like that. Go to bed early have full sleep.

When I was in the Engineering college, I used to go to bed very early and get up also very early and I used to be very proficient, good in studies, always used to stand first. I was first in the University when I passed out. My colleagues in the hostel could not believe that I go to bed, so early and get up early. They used to come and watch whether I was telling truth, whether really sleeping early, that I go to bed at about Nine (9'o) clock and get up at about 4.30 or 5.00 Am. and that practice I continue even today. In this late stage of my life, I still go to bed very early get up very early. This is very important, but' have the minimum hours of sleep that you need, don't sacrifice that.

Ladies and Gentleman, there are certain things in our life that we can't change. You can't change your complexion; you can't change your facial features. You can't decide what height you should have. You have no control at all over these things. But these are the two areas, health and good character, if you have full control you can practice and you can master it. As engineers, this is one lesson you should learn early in your life, and carry it throughout your professional career. I think I have taken more time than what is allowed.

Ladies and Gentlemen, it has been really a great opportunity that I got to come and speak to you and deliver this 5<sup>th</sup> Memorial lecture. If what I have spoken to you and if you are able to imbibe the essence, how an engineer should conduct himself, what quality, what ethics, what values he should absorb and uphold in his life, I think the purpose of the organizers in getting me for delivering this memorial address is served.

Thank you all very much.

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