

Infrastructure Planning and Management
Introduction to infrastructure and the Transportation sector
Part 1D

One of the and we saw this in that graph that, in the transportation sector, there is a lot of private involvement and I think that is critical because that has been one of the factors that has accelerated the development of transportation projects because no longer are you a government department trying to manage hundreds of projects on your own and you are constrained by band width, you cannot really develop other projects. You do not have the money, you do not have the resources and so you are developing slowly, like a few projects here or there. Once you have private participation, you are actually handing off certain, you know areas and certain projects to the private sector and say you know what, I will do my projects but in parallel you go ahead and do yours, so you are essentially bringing more people to the table and that accelerates development.

So there has been lot of private participation in roads. Question people ask is, why should the road provider come in build roads. Obviously if a private person has to come in, there has to be a profit motive for that, so private companies run on profits. So why does this person have to come in and build roads for us right and so you have got to find a profit motive for them to come in. So the traditional profit motive is to say you build this road, in fact I am not even going to pay you to build the road, you build the road, but you charge a toll for people who are going on that road and based on that toll that you charge, you actually make your money back. Most of you have taken, I think basic course on Economy, Engineering Economics, so you guys understand net present value, discounted cash flows etc.

Even otherwise we will do a quick summary in a few weeks from now, but essentially that is the plan right. The plan is, let the developer come in and build the road, finance it using their own money, collect tolls and collect tolls to a point where they actually make some reasonable profit. Alright, so this is the theory, what that does is, the money that I have as government, I will continue to build roads right and there, there is no toll that I will need to collect . So I will go to a, I will still go to a private fellow, but he will just be a contractor, I will just tell the fellow, here are the specifications lay the road forming right, so I can go to an L&T, I can go to whoever.

In parallel, I can go to the private sector and say here are some other roads that I was going to lay, I don't have the band widths to do it now and I don't have the money to do it now, why

don't you guys go ahead and lay these roads and we will and you can collect toll and we will figure out a way in which we, you know award these projects in some fair manner and I will get to that a little bit later in the class right and you collect money based on toll, now the big difference though is that, this toll revenue is high risk or low risk or no risk right,

Student: High Risk.

Professor: It is at risk, I mean high, low, might be subjective, but it is at risk, because there is no guarantee that people will pay toll. There is no guarantee that there will enough demand. So today you know, we are all travelling between A and B because perhaps there is no other option available. Tomorrow there is a wonderful railway, rail connection that is built between these two cities and this bullet trains are run, and people might say looks it is just far easier for me to sit on a train and work for a couple of hours rather than sit in a car and drive that long and so traffic might dip.

So, and we can talk about and we will in this course talk about n number of scenarios, where traffic might be affected, but tolls sometimes could be at risk. So the private sector is sometimes worries about this and says yes, in theory it sounds good I will make a profit, but in theory I may also not make a profit and what is the fun in that.

So then the government comes in and says, you know what, let us do a couple of things. There is something called annuity. An annuity is essentially in the rest of the world, these are sometimes called availability payments. And essentially what the government says is, you build the road right. Now, instead of you collecting toll from people every six months. I'll pay you a fixed amount provided you maintain the road to certain standards. So I am not going to spend my money upfront and building this entire road, you spend 400 crores, 500 crores, whatever it is you build that road and then I will pay you periodically over a twenty year period. Over twenty years, you might collect tolls from people or don't collect tolls right, I will pay you a fixed amount provided, you maintain the road to certain standards.

So every six months, I will come in, I will inspect the road and if the road, if the roughness indicators, this, that all of that is in order, I will give you your payment. So this way you do not now have risk, you know how much is going to cost you to build the road, every six months. You know what the government is going to give you, the only risk is, if you feel the government might go back on its word but otherwise if it is sort of set in contract etc, there is really sort of no risk.

So, there are always minor risks. So the point Nandesh is making is a good one. Essentially what he is saying is, I have budgeted certain amount of maintenance into these roads and that, why do I need to maintain the road, traffic goes up and down, you know of these big multi-axle vehicle that go up and down, and there is wear and tear on the road. I have estimated a certain growth in multi-axle vehicles and I have estimated that once in five years, I need to do a major maintenance, but it might turn out that there are far more vehicles than expected and I need to maintain it once in three years and so my maintenance cost goes up.

So there are these kinds of risks that are residual risk, but this risk is probably far lesser than the risk that I would never get anything in the first place. So this is one strategy, where the government says, I do not have to pay money upfront, you can actually build this road because you asked me to put in 500 crores. I don't have 500 crores today, so you build the road and I will pay you slowly over a period of time, so that you also are not worried about the risk that you are taking. So this is something called the availability payment.

(Refer Slide Time: 5:50)

The slide is titled "Private Sector Participation in Roads" and lists several financing models:

- Toll collection for Revenues
- Government subsidies
 - Shadow tolls
 - Annuities (done in India)
 - Viability Gap subsidies (done in India)
 - Subsidy-based bids

Handwritten notes in red ink are present on the slide:

- "Availability Payments" with an arrow pointing to "Annuities (done in India)".
- "SHAM" with a large 'X' over it.
- "Hybrid Annuity Model" written below "SHAM".

At the bottom left of the slide is the logo of the Indian Institute of Management (IIM) Ahmedabad. At the bottom right is a small video inset showing a man speaking.

Today we have something in India called HAM. Okay, anyone know what HAM is.

Student: Hybrid Annuity Model.

Professor: It is called the Hybrid Annuity Model, some people say that HAM is a SHAM, but essentially it is the Hybrid Annuity Model. What is the Hybrid Annuity Model? So essentially, it is similar to the annuity model, it is similar to bringing in the developer, telling him you put in your money, you build the road and I will pay you periodic payments every sort of twenty years, I mean every six months for a period of twenty years. What the hybrid

annuity model does is, it says I will pay you about 60% of the total cost right after construction and only 40% of the total cost or something like that, will I pay you over a twenty year period?

So again more or less, you have spent a lot of money, you get a lot of that money back, relatively quickly. Then, but you don't get all of it back, you still have to maintain the road in sort of a good condition and over a period of time you actually get your money back. So these are all ways in which we do this, there are pluses and minuses. People say, look but the cost to the govern, you know, one of the concerns with the whole annuity availability payment mode is, today it is very easy for me to say I do not have money, you know you do this three roads, you do those four roads, you do those three roads, etc, and then five years down the line I have to pay you. I have to pay you or I have to pay you three, I have to pay you five, I have to pay you six, and suddenly I have too many payments I need to make and I might run out of money.

So the question is, are we really just pushing away today's problems to tomorrow? From a financial perspective, does it really work out because this fellow has taken a loan at commercial interest rates and he or she needs a payment with which they can repay those commercial loans and therefore the amount that I have to pay him for him or her to repay might be quite high. So there are some concerns around annuity and therefore at one point one of the National Highways schemes almost all projects were done on annuity.

Now there are very few, that are done on annuity essentially for this, the basis. Another sort of variant of that is what we call shadow toll. Shadow toll also and it is been in the UK in a few cases. The shadow toll method says the same thing you know, you build the road, do not collect toll, but I won't pay you a fixed amount of money either. We will count the number of people going back and forth on the road, so I just keep count and based on that count of people I will pay you a certain amount of money, so, it is almost like an imaginary toll which is why it is called shadow toll.

Everytime, a car goes through, the car fellow does not pay you Rs. 45, but I will count Rs. 45, towards your name, where that is useful is sometimes you know, people have this mentality saying, this is a toll road ,that is a non-toll road, so let me go on non-toll road because I don't want to pay this Rs. 45 expense now. So now I am saying, look, come on, this road you do not have to pay the Rs. 45, but if you go on this road, I will count and I as government will pay you, Rs. 45, so that is another strategy that people have used in terms of saying, how can

I provide? Sometimes the private developer is a bit unsure, am I going to lose people, what if people just sort of run off without paying toll, how do I really check all of that and this is the strategy that says, look, you don't worry about those kinds of risks.

So the many of these kinds of models with roads, there is something called a Viability Gap Subsidy. What that means is developer looks at it and look it is going to cost me 500 crore to build this road, but when I filter risk into the equation, I think about, I will probably make about 420 crores. So I am really not comfortable with this project. Maybe there is a scenario where I could make 500 and 520, but essentially I feel when I do my risk calculation I will make about 420, so I don't want to come in for this project.

Now this government sort of thinks and says, look, if this guy goes away, then either I will not build that road or I will have to spend 500 crore. So what if I give this person a sweetener. What if I gave him 80 or 100 crores and said okay, here is a grant, I give you 100 crores, you put in, whatever the balance is, build the road and make your money. That way, the developer only needs to put in 400 crores, so 500 crore road, 100 crores is been given by government, developer puts another 400. So even if you get only about 420 odd crores back, you are not losing one right. So there is something called a viability gap funding, so the project is not viable because there is a gap, so that gap will be subsidised to the developer.

So it is called the VGF. These are strategies that have been evolved in the road sector to bring in more private participation. Many of these strategies have also been used in other sectors is not that, it is just, annuity have been used in many other sectors, etc, but these are the kinds of variants, so people have said look, I need more private participation. I need to incentivize these people. I need them to sort of make a profit, so let them charge a toll. In certain cases we are not quite sure if the toll revenue will be adequate, so can we do a annuity, can we do shadow tolling, should I give this person a viability gap and so on.

And sometimes the bidding parameters, so to decide who builds my road, one way of doing it is to say, I want this road to be built, how much money do you want as a subsidy, how much money do you want as a subsidy, and how much money do you want as a subsidy? So if you say, I want a 100 crores as a subsidy, that is what I need to make this project worth for me. This person says no, no, my construction is far more efficient. I can build it 20, 30 crores less. I only need about 70 crores as a subsidy and this person is actually going to use lean construction and BIM and all the other things that we teach you in construction management and says look, you know what, I only need only a 20 crore subsidy.

So then essentially I say look, I allot the project to you because you wanted the least subsidy, the viability gap that you ask for is only 20 crores, all of you going to deliver the same project, but you only want 20 crores to deliver it. So I would rather give it to you than pay 100 crores and give it to you or 70 crores and give it to the other person. So sometimes this is how the bidding works. We say this is the road, this is length of the road, this is the quality parameter, this is the toll that you can collect, motor vehicles you know light motor vehicles, heavy motor vehicles, multi-axle vehicles, so per many trip, all of that is set.

Now you tell me, how much do you want me to give you, in terms of a viability gap or in terms of a subsidy, the fellow who wants the least subsidy, gets the project. In certain cases, the opposite happens. The private sector feels that the project can be superbly profitable and therefore they say, you know what, I don't want you to give me a subsidy. I will give you a money back. I will pay you, you don't pay me 20 crores, I'll pay you 50 crores, and that is what's called a negative grant, where you essentially go in and say this is the road, this is the toll road, etc. I want to figure out who is going to build it, how much subsidy do you want and one of you puts up your hand and says what subsidy I will give you money back, and if everyone else reacts the same way, then I will sort of look at who is going to give me the most money right, so you give me 60 crores, 20 crores, a 100 crores great, I will take 100 crores from you and give you the project. So sometimes this is the way sometimes the bidding process works, at these kinds of cases, may be say, certain things are fixed and here is what I want you to, but there could be other bid parameters as well.

For instance, you could say, you know, there is no viability gap, no, nothing etc. You are going to build this road from here to there, this quality all of that, this is the toll that you are going to charge, how long do you want to operate the road right and you might say I want it for 18 years and you might say I wanted for 16 years and you might say I wanted for 21 years. So I will say, okay, you only wanted for 16 years, so I will give you the road because then I get the road back after 16 years because essentially we are not, the road is not owned by the private operator, the road is developed, they will collect some toll for a period of time, but the ownership of the asset is still with the government.

So after they collect toll they made their profit, government starts managing the project, so one way of doing is to say, okay, you want 18 years, you want 21 years, you want only for 16 years, I will give it to you. So that many ways in which you could structure the bid process, so this is a bit of what has been happening in the roads sector on public-private partnerships.

Again, we will go through these little bit more in detail later. But one of the big issues with roads, there have been several issues with roads and one of the big issues with roads is ofcourse land acquisition, and that has been a big challenge. Because primarily in India, we are a country where I know, we are heavily populated, so wherever you want to build infrastructure, it is unlikely that you have fallow land that is owned by some government department that you can just take and build. It is often private land that people are using for some useful purpose, they are either living on it, they are farming on it, they are making earning some kind of income on it and so the question is, and so you got the acquire that land.

Now, in the Constitution, there is something called the principle of Eminent domain. Simply put, what this says is, if a land is required for a public purpose, then the state has every right to acquire that land. In other words you as a private landowner cannot say I will not sell. If I as a private person come to you and say please sell me this land you are well within your rights to say, you know, bugger off I will not sell, but if I as a government come in and say this is for public purpose I need your land, you cannot say I will not sell. All you can do is negotiate with me on a fair price, because the the article also says that we need to pay a fair price.

Now the question is what is a fair price?

Student: four times the actual price.

Professor: four times the actual price?

Student: (Audio too low)

Professor: Ya, but what is the actual price, you are saying four times the actual price in rural areas, what is the actual price?

Student: market price.

Professor: Market price, how do you do the market price? Alright, so if I had fair markets, that would be fair. We know this land is worth so much, so acquire it from you at that value, but I will pay you a premium because I am inconveniencing you sometimes you even call it solatium. I am taking away land, there are also some, you know, maybe your family has lived on this land for centuries, you have a lot of cultural, religious attachments to it, etc. so I will compensate you beyond just the cost of that land, it can be 2x, it can be, you know 1.4x,

whatever we will work out formula, but I am assuming that we have a fair market, we agree on what the value of the land is.

The problem is, that is not as simple as it sounds, because if I want to find out the value, I, as a seller want a higher price for the land, you, as a buyer want a lower price for the land. So we go and say, look, you and I cannot agree, let us go and figure out what the guideline value is. So let us go to nearest tahsildar's office and let us find out the last few land transactions and how much it costs and based on that we will arrive at some, you know, agreeable value. But what might have happened in this land transaction is, so I am selling land to you, if I sell it to you at say a crore, I have to pay stamp duty on one crore, so what if we cut a deal, we say, you know what, I will sell it to you officially for 20,000 rupees and we will register it that and I will pay stamp duty on 20,000 and I will send you a suitcase, for you know 78,000 because a suitcase might be worth 2000. So if you have these kinds of, because I am exaggerating and caricaturing and all of that, but the point is the recorded value of the transaction might be well under the value of the land, and now it becomes difficult, if you, if I as the government say, boss the last four transactions have all recorded 20,000, that is all you are getting, that is the fair value and with me, there is no suitcase and what.

So you are to take your 20,000, you are limited because you know that the land is worth a crore so, and therefore there are discussions, there are negotiations. So you go to court, I go to court, people and when there are multiple people involved because you are not acquiring one person's land when you are building a road you are acquiring tens or hundreds or thousands of peoples land, so those become, so how you compute value of land, become sort of very interesting issues, economically.

Socially, there are a set of issues. So for instance, you have a road here that you are going to buy, so you have acquired, you know these piece, this land here. Okay, you have acquired this land here and this land here alright, because originally this was the right of way available, you have acquired these two parts of land. Now this is you with a white, this is me with an M we have been, you know our families have known each other for hundreds of years, and we are neighbours, we have exactly the same lifestyle in dress, this that etc.

Some developer comes A and whatever eminent domain or whatever it is, and he buys it from you at some price and you are happy your money in your pocket, you have got to relocate, fine you relocated somewhere here, but now this is road is being built, what happens to the value of my property?

Student: Increases.

Professor: Increases, so now my property is actually worth, and how fair is that? What do you think about that, how you going to feel about it? So from an equity perspective again, this is sort of what causes a lot of these protest etc. So solutions are tried out. So for instance one solution that people have been thinking about is, can I buy this from you know, some money but also give you some shares in the project company. This is a project company that is going to make a profit, because I am going to build this, what if I give you some shares, so as the project company does better and better, you get an extra income. So that are ways in which we are trying to sort of think about or can i somehow link your payment not just to the value of the land.

So the point is, again, what I am trying to sort of say is land acquisition is extremely complex, first of all, finding out who owns the land itself is difficult, titles are multiple etc, then what is that land worth, how do I equitably compensate, so not easy at all.

So environmental concerns, you are cutting of forest land and how does that work and these are gained very difficult questions to ask, we will talk about this specifically, later in the class, but forest or wetlands or whatever they serve a function and if they you take away that function, they serve a series of functions, they fix nitrogen, they aid percolation of groundwater, they you know, they do so many things, they purify the air, etc.

When you remove that, it is not just a question of some value of the land you are actually removing services and what is the value of the services is something that we really need to get down and think about. So there are concerns and people say, we don't really care about the environment, we are just sort of focused on development because of which you have these floods and heat waves and all of that and these things need to be thought about.

(Refer Slide Time: 21:01)

Issues with Roads

- Land Acquisition
- Environmental and Societal Concerns
- Ridership concerns, Tariffs
- Financing
 - Cess,
 - Government funds
 - Tolls



We have talked a little bit about problem problem with roads, particularly toll roads, are people moving on them, etc. how do you finance? So the road agenda is not simple, we understand there is a problem, we have been doing a lot. NHDP has built lakhs of kilometres of roads, we have tried out PPP, we have tried out government building it etc, but it is not been a smooth ride by any stretch of imagination. Even today, projects get delayed because I am not able to acquire land, but infact I am on the board of a project company, and for obvious reasons, I am not able to name it here. But this company that I am on the board of was asked to build a road in this private, public-private partnership mode, build the road and you collect toll on it with the promise that land would be given, because as a private fellow if I go and ask land, people might not give it to me, as government if I go ask land I am more legitimate.

So the idea was land would be given to me by certain period of time and I would build this road. What happened was land was not given to me, because the process of land acquisition was difficult and the from government prospective you are afraid that if you push the needle too hard, then perhaps you will face retribution in the next election, and so at some point you have to think about that as well. So whatever it was, this land was not acquired, which means there is no road, which is a wonderful road and then there is, not so wonderful road because a land was not required, then wonderful road and then not so wonderful road etc. As a result of which, not enough people are going on that road, and the toll is not been and not making and this was pure toll. No viability gap, no nothing etc, pure toll. I am not getting enough toll revenue, but I have to pay my expenses, my subcontractor need to be paid, my employees need to be paid, etc. So what do I do? In this case, you know, we had to go through

arbitration, you know, and sort of essentially I think the project's been terminated and all of those kind of things, but this is a you know, typical case of difficulties in land acquisition right, ridership etc, and the project you know, essentially failing quite miserably.

So lots of these kinds of difficulties, in fact, recently there was a whole committee that was set up to renegotiate road projects because hundreds of these projects, were in terrible state right, where they some fellow had said, you know, we will make so much revenue out of tolls and the revenue that actually came out was a fraction. Partly that was also because some of the private developers were greedy and optimistic, or they gave it to some consultant who extrapolated and said, traffic will grow at the rate of 20% per year and it did not, in excel spreadsheet you can do whatever, traffic can do whatever you wanted to do.

Unfortunately, it does not do that on the ground, so it is not that it is the government's problem, the private sector sometimes has been overly optimistic and been swayed by India shining this that etc. So if you read the newspaper you will find the term called NPA, what is NPA?

Student: Non-performing asset.

Professor: Non-performing asset, who has this non-performing assets, who who complains about this?

Student: Banks.

Professor: Banks, because banks lend money to these projects and they are not getting enough money back, because of these kinds of reasons, so there are committees set up to deal with this projects. What do we do, can we change the terms, so that you know the project can get better, so there is no way you are going to make your money in 15 years, maybe I will give you 20 years, maybe we should sort of give you some, so this negative grant that you promised when I asked you how much money do you want from me you guys said, no, no, I will pay you, so maybe we need to rethink that a little bit.

Okay, now that is also obviously difficult, if all of you bid and you said I will pay you 10 crores, you said. I will pay you 40 crores, you said I will pay 100 crores and I went with you. And now if you come back and tell me, I cannot pay you 100 I will only pay you 10, hey, what is that person going to do, tell me what do you mean, I offer to pay you 10 and you did not take my offer, how can you let this fellow do the same?

So it is not that simple, so I have got to sort of come up and saying, you have got to pay me the 100, but maybe I give you an extra couple of years to pay. So, there are all of these problems that have been, so that if you go and look at some of these committees that have been constituted etc, you will find that all of these projects have come up there for renegotiation.

(Refer Slide Time: 25:11)

NHAI Website

Targets and Performance			
Sl. No.	Parameter	Target (2018-19)	Achievement Apr-30 th June (2018-19)
1	Road Length to be Awarded (Km)	20,000 (Proposed)	892
2	Completion of Construction (Km)	16,418	1,348
3	Highway Length Talled (Km)	4,000	84.74
4	Collection of Toll Revenue by NHAI (Rs. Crores)	8,000	2,297.4




This is something I pulled out yesterday, so this is a bit of a you know, sort of a scorecard, so just look at these 2018-19, the target was 20,000 kilometers of roads were to be awarded to contractors to build. As of 30th June we're it 892, half the year is done, similarly 16,418 of those kilometres were to be finished or if not just this years awarding, this could be previous years as well projects to be completed right again, we are at 10%, may 15%, maybe.

Every, all of this metrics look at the collection of the toll revenue was supposed to be 8000 crores, how much are we collecting, fraction over 25% right, 30%, close to 30% , so again there are challenges, so we are doing a lot as a country.

(Refer Slide Time: 26:06)

Performance of schemes and learnings - Transportation

Key Issues:

- Roads are **congested** and of **poor quality**
- Rural areas have **poor access**
- The railways are facing severe **capacity constraints**
- Urban centres are **severely congested**
- Ports are **congested and inefficient**
- Airport infrastructure is **strained**
- **Interconnected, hierarchical transport network** is absent
- **Causality and timeliness** of transport network
- **Rebalancing and capacity** of transport networks



Performance of schemes and learnings - Transportation

- **Funding** methods for different transportation modes can be different.
- **Pricing** of transport infrastructure is very complex.
- **Urban Transport** needs to be more formal with proper study being done into feasibility of it's effectiveness.
- **Governance and institutions** should be updated to facilitate intermodal operation.



Performance of schemes and learnings - Transportation

- **Skills and Human Resources** with specific knowledge are urgently required.

REQUIREMENTS:

- Hierarchical connectivity, intermodal access and fit for purpose network standards should be emphasised.
- Infrastructure should be programmed in anticipation of future demand.
- Investment should be made for significant capacity augmentation of the railways
- While retaining the role for the government in infrastructure funding, private investment must be stepped up.
- More sophisticated and less distortionary pricing policies must be developed.
- The severe shortage of skilled transport professionals must be addressed forthwith.



But there are significant challenges, so these are bunches of, I have just sort of listed these down and put the slides up and all of that, this are a lot all of these learnings, I will not go through these slides will sort of, you know we will sort of flip through those but essentially from a roads perspective, there are a lot of these learnings. eEssentially what we have on those slide is what I have already talked about. Similarly, I mean we have got, we are starting to build airports, some of these airports, Mumbai, Delhi, Hyderabad, Bangalore, again, we have private players building them, Chennai, we took a decision, saying, no, no, it will be the, so on the public side, there is no state authority for airports, it is the airports authority of India, so either it is built by AAI, like the Chennai airport is owned by AAI or it is built by a private, you know, consortium. There are different rules for the airports in terms of the privatisation, we will sort of talk about Delhi airport a bit later in the class, but one of the ways the airport deal works is that, if you have an airport 74% of that airport is owned by the private player, 26% is owned by, 13% by airports authority and 13% by government of Karnataka, government of Andhra whatever.

The reason being that in company law in India, if you own 75%, then you can actually pass certain things in the board, whereas if you own less than 75% others can veto, so to make sure that you don't have extravagant control, there is, that sort of, that is why funny number 74% is there but it is not a pure private play. It is not like you get a private fellow and say you own all of these for the next 15 years. The airport is sort of mix of public and private and together that group owns the airport for about 15 years, 20 years, 30 years, whatever, you know runs the airport and which means they sort of provide spaces for shops and establishments they provide gates for people to board and de plane, they provide the baggage handling system, they maintain the runway, they maintain the tarmac, all of that they do.

As passengers we often pay a fee, so if you fly into or out of Delhi it is a bit more expensive than flying in or out of Lucknow, for instance, they collect money from shops and restaurants that they rent space to, airlines probably pay them some kind of a fee, so all of this put together right, so there is a bunch of stuff that is happening in the air sector as well.

Ports we are luckily, we are blessed with a long coastline, the number of kilometres of coastline is quite long because we are a peninsula. So, and a quite strategic as well, so Gujarat, for instance, is a wonderful staging point for a ships that are coming from the West right, and also is a great staging point for importing things from the Middle East, Gulf countries all of that, so that Gujarat coastline is actually dotted with ports, there are two kinds

of ports major ports and minor ports, again there is a port trust authority that takes care of that and now in Tamil Nadu etc, we are trying to build ports up on the eastern seaboard as well, so ports there are quite a few ports, many of them are being done through public-private partnerships, so private organisations come in and they build the port they charge the ships a fee, so the ship comes in either it refuels or it loads and unloads as a port owner, I promise you that I will do as efficiently as possible. I will minimise the turnaround time, in return for which you pay me a certain amount right and so there I can make my money as well.

(Refer Slide Time: 29:26)

Railways

1. Increase the utilization of existing capacity (bogeys) by cutting costs
2. Tie up with private players to run trains, depots to improve quality
3. Offer Volume based discounts to boost sales
4. Develop owned land
5. Computerize operations to improve transparency and efficiency
6. Lower passenger prices



Railways and we will probably conclude with this today, railways is one of our success stories again, sometime ago railways were terrible, they were bleeding money etc. Then, ofcourse, Lalu Prasad Yadav took over as Railway Minister and of course he had some very smart people working with him, but essentially they did some the wonderful things, they did tie-up with private players, they started developing land, they reduced passenger prices, they increased the utilisation of boggy, essentially the point was, why charge high and have things run empty, when you can charge low, have freight running full and make more money out of.

So literally overnight, rail transformed from being a very sort of poorly run industry to actually something that, trains, many trains, now, these days leave on time, reach on time and it is a good sign that the trains are crowded, because a lot of people are actually using them etc. So that in a way is a snapshot of what has happening in transportation. So we have road, rail, air etc, these are the kinds of schemes, private partnership, the participation is quite important, lot of work is being done but there are challenges. We will look specifically at case studies and will start talking about what will happen. Alright, so I said, we would do

transportation, power and telecom, we have only done transportation, which means next class we will start doing, we will do some more of these going forward, but we will stop here for today.