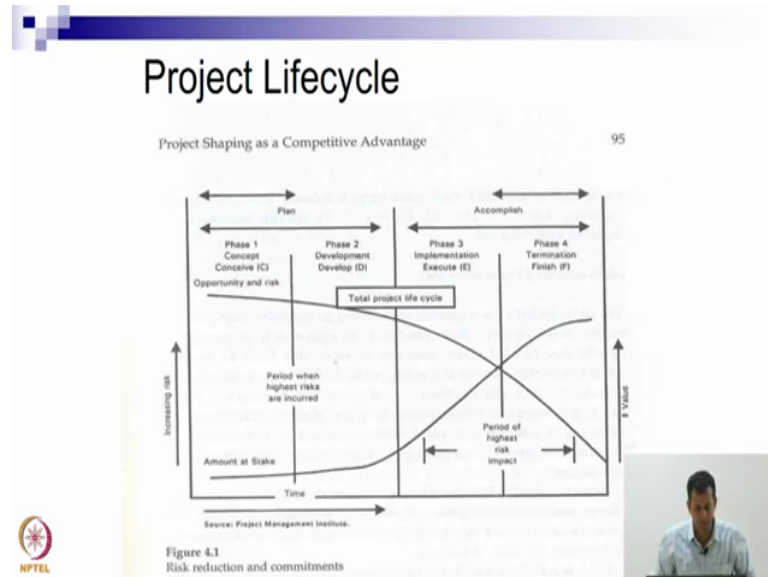


**Infrastructure Planning and Management**  
**Indian Institute of Technology, Madras**  
**Phases and Players in Infrastructure Planning and Managements Part 2B**

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First talk about a couple of things (0:15). So this is the picture which is the many variants of this picture essentially there are a number of phases of these projects but on the right hand side on the right side of the vertical line is the essentially implementation execution phase where concrete is poured into the ground or whatever, right any project is build. Prior to that there all kinds of planning decisions that are taken to get to a point where you can actually go to somebody and say you know put pipes in the ground or put concrete on the ground.

And so you can essentially divide these two into a planning phase or a front end of the project which goes from time  $t$  equals 0 when you first thought about the project to the point where you are actually ready to build. And the back end of the project which is you actually build the project and start using it. Generally, what happens is people are very eager to get to the back end, right because you want to get it done, you want to get the road build, you want to get the power plant build, you want to get people to start using that infrastructure. And because of that and then of course you want to do that that is where your returns are, that is where the value is created, that is where the political capital is created, that is where people can sort of drag and say look I build this versus that.

So what tends to happen is that first part that planning part (tends to be tends to get) tends to shrink you know quite a bit to the point where in certain cases you have you know insanely

the short durations for planning, when you do to somebody and say you know what I want to start constructing this in a period of 3 months so figure out you know how this road has to be built so that I can actually award a tender to a contractor so that they can build this road from city A to city B in 3 months and I want to do it in 3 months because you know then I can actually make a public announcement, it will take 18 months for the road to get build, a few more months for people to use it and before my election term finishes, people might actually be able to see the benefits of what I am doing, right.

So generally that phase tends to get shrunk and it looks like it is a relatively simple phase I mean it is all on paper, right so what is there all you need to do is plan a road, take out a map, figure out you know how you want this road to go and you know just figure out the specifications, right there is enough specifications on you know the thickness of various layer, etc just about the contract it sounds quite simple.

But it turns out that phase is actually one of the most critical phases of the project, there are lot of complications and challenges that you should either manage in that phase or if you do not in those phase in that phase then those challenges are likely to manifest later on and we will talk about some of them going forward. This particular picture I took from this book called the strategic management of large engineering projects by Roger Miller who is a faculty in Canada and (( ))(2:50) faculty at MIT.

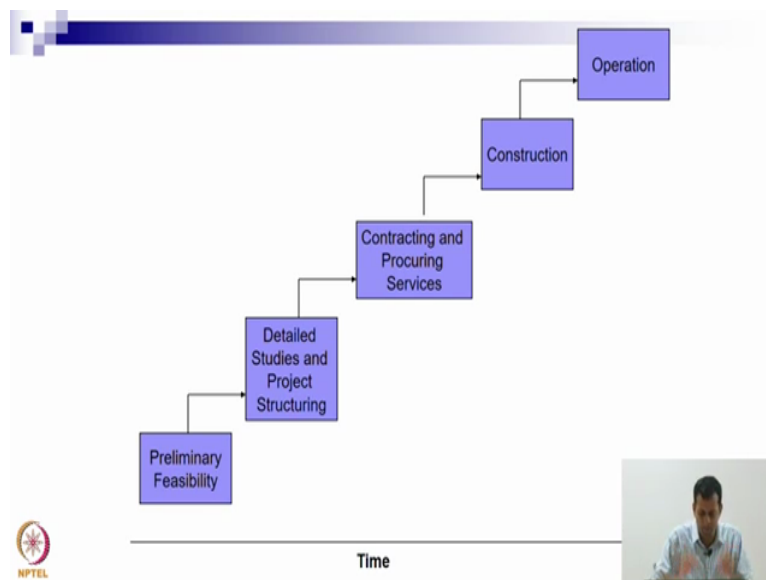
And they sort of say sometimes that in certain cases if it takes  $x$  units of time to do the construction then perhaps it should take  $10x$  units of time to do the planning, right. So planning so really outpace construction by  $10x$  because that is how important planning is, right. So let us take a look under the hood the other part of this picture is that what it also tells you is that in the planning phase you spend very little money compare to what you will spend overall you spend most of your money in construction, right yet in the planning phase you have the complete flexibility to do whatever changes you want.

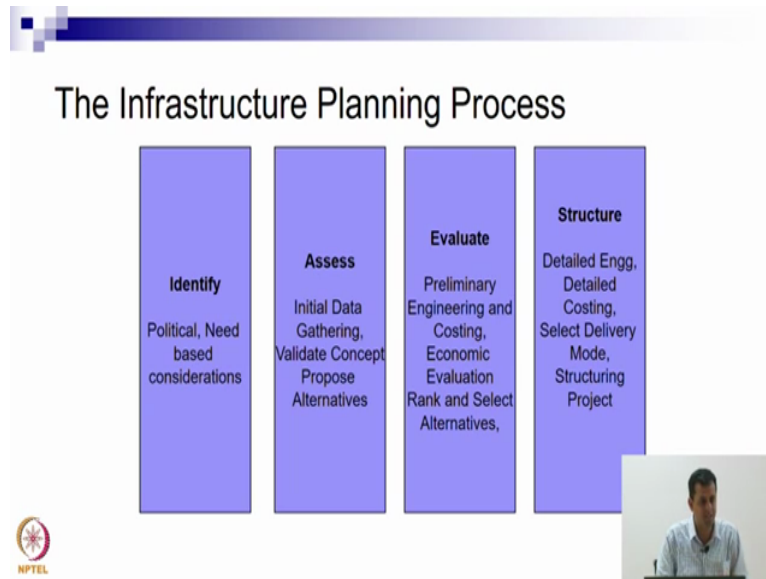
So the planning phase is the phase where you can really get things, right you are not spending money, everything is on paper you can change specifications. As you start moving from the left side of the picture to the right you are starting to spend more money, your budgets are decreasing that is the bottom curve that is going up and your ability to make decisions is coming down.

If I have already sort of started pouring concrete in the ground and suddenly I say or if I start pouring asphalt and I suddenly say look I want this to be done differently I want to use the differently material, I want to widen this road so I want you to that might involve taking all the storm water drains of the side of the road and relocating them because you want to widen the road.

So it starts become more and more expensive, so the control you have on your project diminishes as you go through to a point where you know you get to 3/4ths of the way to the project where there very little you can do, you have got relatively very little amount of money available in your budget and you have already put so much in the ground that you cannot really change things too much. At that point if you realize that what you build was not exactly what was expected it is a bit too late, so that is why the planning phase is important.

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So take a little bit of look under the hood, right so this is more or less I think what Likita was talking about, there is a preliminary feasibility stage, right detail projects, contracting services, another way of looking at the same thing is sort of this sort of picture very similar, there is an initial stage where you identify a project. Now identifying a project is also not easy, right you have got to there is lot of sort of discussions on what is the right kind of project here.

So for instance in Chennai itself when we started looking at you know traffic is a problem what should we do, multiple options emerge, right metro rail, mono rail, better bus systems, start taxing automobiles so that people actually reduce the number of cars they have on the road like Singapore for instance so you cannot really it is very expensive to buy car. So all kinds of ideas come through in terms of resolving that problem.

So to pick a project from that, to identify a project is not a simple task, right part of it is based on technology, part of it is based on economics, part of it is based on politics, right so one of the reasons metro rails might be appetizing is that they are large pieces of infrastructure that somebody can claim to have built it is not quite as sexy as just putting in new buses and reorganizing your bus system, what is the challenge in that whereas building a metro rail.

So identifying projects sometimes take time, you have got a consult with stake holder, so I have a power depict I want to put up a power plant, okay what do people who are going to live next to that power plant have to say, particularly for instance if you are planning to use nuclear power or even if you are going to build a thermal power plant. I have water treatment

problem so I want to build a sewage treatment plant, okay what about the people who are going to live close to the sewage treatment plant, what do they have to say?

So I think all of these things are things that we need to think about and if you do not think about these issues then essentially what will happen is you will go ahead, you will award the project to somebody and then as the project is being constructed you will have all kinds of protests, you will have people blocking the project, you will have people turning away lorries, you will have people staging demonstrations, opposition political parties might think they might get good political mileage out of it they might start escalating the issue.

And you might then be faced with issues that you find that then become very expensive to handle and which delay your project in an indeterminate fashion, so some of you have been following the sterlite saga today that is the key case of stake holders, right coming in and protesting against essentially a mining operation, there are many other examples that we can give off where stake holders have not really been taken into consideration, we do not even understand who the stake holders are and these people then come out and protest.

So the best place to identify stake holders is prior to the beginning, what do people think about this project? And we will talk about stake holder management a little bit later in this course. So that is a difficult stage in itself. Then you get to the stage where you say okay I think I have identified the project, I think this will work, so this kind of a power plant can be located here not too many people are going to be effected, it is going to generate enough and you know I think I can distribute it to this area all of that works.

You have got to start getting a little bit more detail, you have got to start looking at okay now if I am going to build this power plant what specific technology am I going to choose? Even if it is a thermal power plant, is it going to be (( ))(7:44) where am I going to be situated? Is that land available? Who is going to give that land to me, how much is it going to cost? So you start getting a little bit more detail until you actually start getting into documentation, somebody actually comes up with a drawing based on that drawing you decide how much this is going to cost?

Then you have to start thinking about if it is going to (( ))(8:05) do I have the money? If I do not have the money who will I go to get the money? And this is where the discussion came on a variety of people that you can get money from. Should I do it as government? Should I give it to a private contractor and do it through PPP? If I give it to a private contractor to do it on a

private concession at to do through PPP, how will that person will make his money? If they are going to make money through some toll, then what is the likely return on investment that they are going to make?

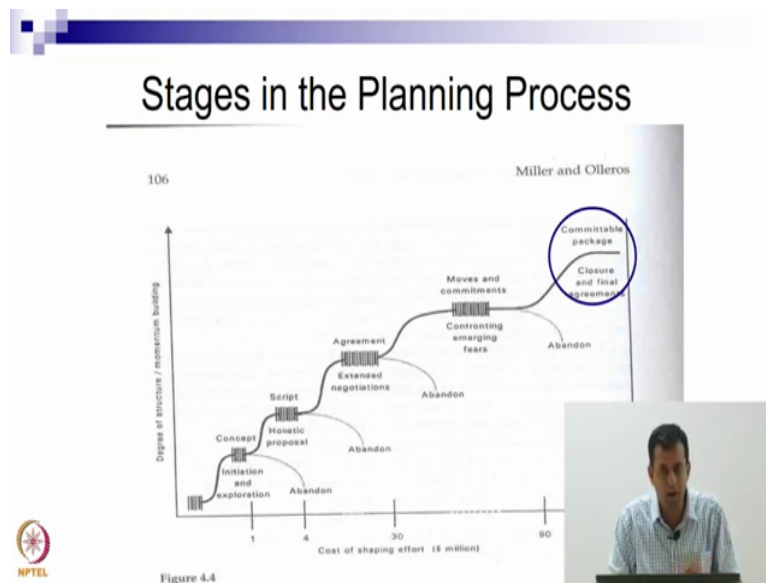
Will it be high enough that they would be interested in coming? Will it be so high that you know we are taking societies earnings and giving it to a private organization? What kind of contract should I have? Should it be a fixed price contract? Should it be a cost plus contract? Should it be a build operate transfer contract? How am I going to operate and all of this now needs to be documented before you can actually go and select the contractor and say boss go ahead and build this for me. So a lots of things that need to be and these things are not very simple because these things take a long period of time sometimes you have election cycles new governments come in, lot of alternatives to think about, new technologies come in.

So we say what is scarcity in Tamil Nadu so we say let us think desalination, take great desalination but where do we desalinate? If I desalinate too close to the city am I effecting people? If I desalinate too far from the city am I paying too much to transport the water back in the city? What kind of desalination technology should I use, should I bring in the private sector, should I not? And while I am having all of these discussions multiple things will happen, new desalination technologies will come up, I have to go back to the drawing board and see will this new membrane that somebody in the middle east has invented be better suited for the kind of water quality I have off the coast of Tamil Nadu.

Economic fluctuations will happen, somebody might have said I will lend you money at 13 percent interest that will now become 17 percent interest or 15 percent interest or whatever because markets have changed know SEBI or RBI has put in new policies that people now need to adhere too. So it is a little bit of an iterative procedure, it is a moving target I think I have something that works but by the way that interest rate is not available, right.

So now if I have to borrow at this interest rate it is a bit too expensive. So maybe I cannot build a 100 million litres a day treatment plant, maybe I have to start bringing it down, how low can I bring it to make it feasible? So not only is it involved it is also iterate, alright.

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So this you guys can read all of this but this is another way of looking at it, so first you sort of initiate and explore is this project even feasible and an option might be just sort of exit at each stage there is an exit option you might say it does not really work, if you think it works now can somebody come up with a proposal which actually tells me a little bit about what technology we are going to use, where we are going to do this, how many people are going to benefit, all of that.

Then you actually start negotiating and sometimes those negotiations might even be within government, so within government you might have to sort of say go to the finance department and say do we have enough money to build this and they may say yes, they may say no. If they so no then will they allow you to borrow from elsewhere? Sometimes the answer is yes, sometimes the answer is no, who should build it? Now opposition parties in parliament might say look this is not project that you should build, so there is a lot of negotiation political negotiation that happens before these projects even see the light of day.

Then you actually start having people come out and say look I know you guys sat somewhere in parliament and agreed that this power plant should be build but what kind of impact is this going to have on my lives, am I going to live in a completely polluted neighbourhood, will land prices suddenly rise because infrastructure is being build and I can no longer afford to pay rent, will it become too crowded because everyone is going to start coming in and working here and living, what are the implications and is that something that are you going to resettle me? Because I am living in a slum, if so where will I go, what kind of work will I do? All of these are fears that will emerge and need to be confronted, you got to pacify, all kinds

of strategies we will talk about them a little bit later in the class before you can get to a closure on paper, not even a molecule of concrete has gone in the ground yet.

So the project preparation phase is sometimes something that can make or break a project there are enough examples of projects where you just run through you know somebody says as government I can award a contract, (( ))(12:31) a contract tomorrow go ahead and then you have all kinds of protest and we can recall some really key sort of famous ones the Narmada Bachao Andolan is essentially a group that came out against infrastructure related to the dam on the river Narmada, essentially because they felt look government is going too fast in terms of building this and there are issues with building a dam, nearby places are going to get people are going to get displaced because there is going to be localized flooding, ecosystems are going to be destroyed and easy to worth building a dam just so that you can provide hydropower or irrigation or whatever it is.

So lots of cases where these kinds of agencies come and sometimes completely stop projects, there are enough instances of projects example from several years ago Tata Motors tried to build something in West Bengal and because the stake holders landscape was not understood well enough the project was stopped and we looked at a number of cases later in the classroom.

So again we will go through the life cycle of a project, you go through all of this, all of these are negotiations and deliberations. So then you get serious and you say okay now you know we have agreed to this project of course some people will always be unhappy but that is fine, you cannot keep everyone happy but majority we agree that this is a good project needs to be done and for whatever reason we agree that well let us just say we will do within government.

So now you got to go ahead and raise financing for it, there are a number of places from where you can look for financing simply go to banks like financial institutions, lending institutions they suppose and some of them have been set up to lend for infrastructure. So if you look at some of these names like IDBI Infrastructure Development Bank of India it is very clear they want to sort of invest in infrastructure projects, so you go to places like IDBI and say can you give me a loan that is one option.

On the private side a private player can say so loan has to be repaid but acuity is essentially a share in the project that the project does well you sell a lot of power, you make a lot of revenue on tolls, then those profits are distributed to your shareholders. So you can go to



somebody and say give me acuity instead so I will give you shares in return, I will not promise to repay you but as the project does well and the project's balance sheet is better and better you get acuity so there is acuity there is (())(14:44).

Now death against comes from various places we have talked about banks, now the category is not the commercial banks but the multi-lateral banks like the world bank the agent development bank, why go to the multi-lateral? The multi-laterals essentially say look I am not a commercial bank trying to make a profit, I am here for development. So I want to do it responsibly I do not want to give free money because free money does not have value, I want to give you guys money but at a reasonable interest rate I am not interested in 13 percent, 15 percent interest rate, I am interested in 8 percent whatever so I will give it to you at a very developmental rate because I am interested in development as long as your project is developmental in nature.

So there is a trade-off there on the one hand you can get possibly more reasonable loans, but on the other hand your reporting requirements might be more stringent so the world bank for instance will insist and you have got to prove that it is developmental, you have got to prove that you resettle people in a responsible manner, you have got to prove that you acquire land in a responsible manner all of those sort of considerations are there so that is another group.

Yet another group are export credit agencies, what does an export credit agency do? An export credit agency essentially is looking at increasing the exports of a certain country. So if I were JICA or what used to be called JBIC which is Japan's export credit agency, I want to increase exports from Japan, so how do I do that?

I go to say India, I go to the metro rail and I tell these guys look I will give you money for your metro rail project at very low rates possibly even a couple of percent soft loans. So your eyes light up amazing IDBI was telling me 11 percent, 12 percent, world bank was telling me 8 percent and that look good and you are telling me like 2 percent, 3 percent it is too good to be true, what is the catch? They say there is no catch, except when you guys go through the process of building the project then I like certain Japanese contractors to be involved in the project, I would like you to buy some of our coaches or transmission equipment, etc from Japan.

So essentially I will give you money you can build the project but make sure that some of our fellows are involved in this process. So that is essentially what and export credit agency tries

to do. So again from the development countries prospective interest rates are low but you have to in many cases use some of the assets of that of the country from which the export credit agencies is representing from.

But possibly you know if it is Japan, Japan has pretty good contractors like Shimizu you know all of these guys are top Kumagai, Obayashi these are top construction firms world over and they probably have really good signalling systems, etc. So maybe I mean it is not like you are getting something cheap, maybe you are getting something that has good quality. So in those cases export credit agencies make sense.

So the point is you have a choice, all of these people are out there asking for money there are trade-offs you decide which ones you want. Now sometimes if you do not make a well thought out decision and when you say I want 10000 Crores those guys are not going to write you a 10000 Crore cheque at the beginning of the project, money will come in over a period of time, there will be some kind of schedule of when you can draw money.

Now obviously you want to sort of talk to people who will sustain an interest over the cost of that project, what could happen in certain project is you pick some kind of a new financial institution which is not very stable and somewhere in the middle of the project they actually go under so they sort of go bankrupt or whatever that is one reason why money might disappear or you go in with somebody like the world bank and the world bank say you have got to do if these kinds of things land acquisition, resettlement, etc. But they take a call midway saying was you promised to do all of this but you have not, you have not paid these people a fair compensation, you have not resettle these people in the manner that you were supposed to resettle them and therefore I am withdrawing support.

So all of these cases where people can start withdrawing support which is why it is important for you to have done enough work in a planning phase. So then you get to a point where, so here you get to a point where you say okay now it is worth really getting serious you go to a consultant, you pay the money they come up with detail drawings including reinforcement, etc (18:50).

Okay, so that is interesting so the question is do we actually have them number 1 at a sub national level and would you then and the others sort of corollary is could they even be private, why would they? I have to tell I may intrigue by the idea but I am not sure that I have come across sub national export credit agencies apart from generally ministries doing that

kind of evangelization work, so you know someone in Tamil Nadu essentially saying look we can export this to you know we have got surplus power so why do not you buy power from us kind of dealing but it is intriguing I mean and this is something that is probably worth looking at there is a term paper at the end of the class and this could be potentially the kind of topic you might want to investigate.

So I do not know the answer to that question but the ones I have come across have the national organizations. So they do not necessary take an amount from the company so the way it works is essentially what they are doing is money is going out of a country, it is coming back in because it is going to you and your paying and it is coming back and these guys are probably making some profit because they would have been with some kind of a profit.

So essentially what is happening is the country is growing, so the GDP of the country is growing, etc and therefore to strategically do that the government will pump money into the export credit agency so that essentially is the nature of how works, it is not as they charge JICA will for instance I do not think they charge a Shimizu or a Obayashi a fee for doing this and allowing them to participate because ultimately even that will be done somewhat competitively.

So most of the ones that I have looked at have been had some link with government because essentially it is the country's way of promoting exports from that country. So we also have one we have something called the export import bank (( ))(20:36) bank, etc which we also use, okay alright. So we go through this entire protracted phase of planning, then you actually go and select the contractor and then and there are decisions to be made there as well private we just do it I am sure I just get a contractor to build it or and I will pay him at the end of it or should I do it PPP, should I get somebody who can bring in the finances they will build it and allow to operate you know what do I do, if I do the PPP route then all kinds of choices, how long should I let them operate so all of these sort of and this is where the transaction adviser comes in.

The transaction adviser a PWC or an (( ))(21:15) by the way many people have taken this class have been recruited by these people in fact just before I came and one of our alumnus who is now with (( ))(21:22) came in because he is trying to do a transaction in Chennai. So essentially government calls these guys and say look I want to get this project done, I know that I need this project you know initially we have got approvals all of that kind of stuff.

Now I want a public private partnership to be done you tell me how? So I want you to figure out what should be the contractual form you know what kind of tolls should this guy charge you know all of that kind of stuff so you figure this thing out. So that consultant then comes in and they develop a preliminary financial model so that they can understand how much toll can this person charge to be profitable.

Then they go ahead and start calling for bids, bids come in, how do you even evaluate these bids, what do you look at etc so all of that these transaction advisers take care of and at the end of it you have got a winner, you have got an agency that is either going to do the construction or an agency that is going to do the construction and the operation and then they actually start operating the project and in between you have all kinds of NGO's that might come in and some of them might come in ahead of time, some of them come in later, the concessionaire or even the project sponsor has the option of buying insurance, there is a particular kind of insurance that used to be called political risk insurance.

Political risk insurance is very popular because you never knew I mean suddenly country might suddenly switch around because the government changed and they might suddenly decide to yank the concession from under your feet saying look that was the old corrupt government that gave you the ability to develop that power plant, it goes against the constitution and you know the prosperity of the entire country out you go so these are risks that you have to deal with.

So how do you deal with that risk? I mean of course you can negotiate, etc and I mean you can do all kinds of things but you know perhaps buying insurances is one of these sort of strategies, of course today it becomes difficult to do because countries also have reputations so if you do that once or twice you know no investment no one is going to come in to your country and obviously that is difficult as well because we are very globally interconnected world, so perhaps that risk is reducing globally but it is there.

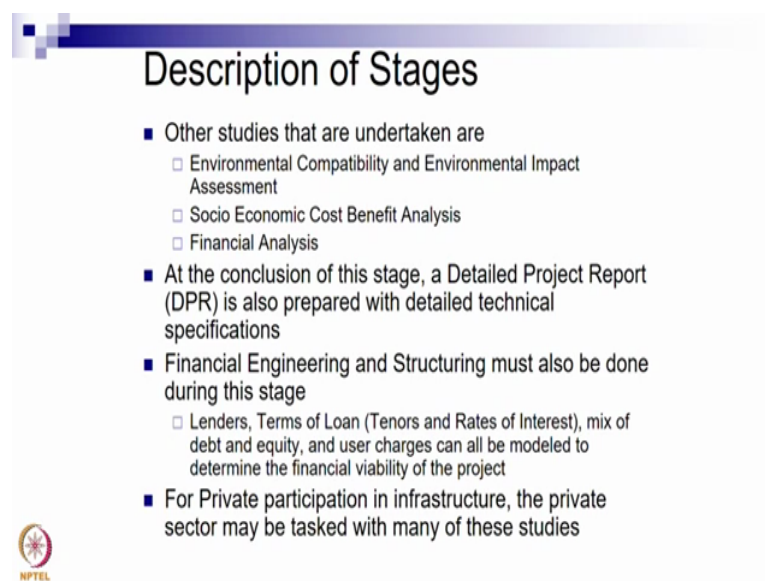
The most creative way of handling that risk was exemplified by one of these Norwegian companies I think was company called Det Norske Veritas that sort of built power plants. So what these guys used to do is they used to build a power plant that sat on a ship or a barge, so they build it in Norway and it would sort of sail round to Dhaka, whatever and they would essentially the power plant would be on the barge and they essentially connect it to the city. So it was very mobile power plant if you will. So you think of most of these infrastructure

assets as being immobile right, I cannot take a road with me, I cannot take a power plant with me but these guys figured out a way to take the power plant with them.

So now if I now have an agreement with the government of Bangladesh saying you will pay me for power and a new government comes in and they say sorry I cannot pay you for power anymore, it is very simple I just yank the plug and sale away with my barge, whereas otherwise I would be stuck with this you know big infrastructure asset in the ground and there is nothing I can do and technological (24:27) easy to reverse engineer.


So even if I and my technicians leave I am sure people can figure out how to operate power plants and there is always there is a risk with infrastructure assets that I will spend all the money building it and then what do the government takes it away from me. Now there are creative ways of dealing with that, anyway so yeah.

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### Description of Stages

- Other studies that are undertaken are
  - Environmental Compatibility and Environmental Impact Assessment
  - Socio Economic Cost Benefit Analysis
  - Financial Analysis
- At the conclusion of this stage, a Detailed Project Report (DPR) is also prepared with detailed technical specifications
- Financial Engineering and Structuring must also be done during this stage
  - Lenders, Terms of Loan (Tenors and Rates of Interest), mix of debt and equity, and user charges can all be modeled to determine the financial viability of the project
- For Private participation in infrastructure, the private sector may be tasked with many of these studies





So I think we have talked about preliminary all of these are just details of various studies and things, there is something called a detail project report that you see in bullet 2 which is a comprehensive document that really spells out how much will this cost what will it look like, what are the returns to be made, if you get to DPR then you are in a position where you can actually start tendering the project so DPR is sort of a milestone. Again sometimes you take about a month and give a consultant and we will look at atleast one case later in the class on water supply in Mysore were essentially consultant was given couple of months so come out of the DPR and so were not able to do a really good job on cost benefit analysis, all of that.

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Projects should be

- Politically Feasible
- Socially Feasible
- Environmentally Feasible
- Legally Feasible
- Economically Feasible
- Financially Feasible
- Technically Feasible



Then once you have a project you start financial engineering all of that, start looking at private participation and make sure that look projects to be successful need to be politically feasible, people need to get some mileage out of it, it should be acceptable from a political perspective, it should be socially acceptable otherwise citizens are going to protest these days if it is not environmentally feasible short term there are protest from environmental interest groups, long term you might cause ecological damage that might come in and bite you in the foot.

Legally feasible and this is very important because some projects for instance I would love to build a treatment plant here but as per the zoning regulations and this might be the optimal place for building the treatment plant because it is the natural place where all the waste water can be collected. But as per zoning regulations that might be zoned into a residential neighbourhood and in a residential neighbourhood legally I may not be able to build a 100 million litres a day treatment plant so legally my project may not be feasible.

There is an example many years ago when our first airport was going to be privatized they picked Bangalore and they did all of the stuff called in consultants, etc figured out how public private partnership model would work, consultants, stakeholders, etc and then finally they ran into this road block where the act that was used to set up the airports authority of India clearly said that all airports in India should be owned and operated by the airports authority of India.

What that means is private participation is not possible as per the act, as per the law of the land private participation is not possible. So that is a legal challenge, so they had to go back

and amend that to get to a point where private participation was allowable in the airport sector before you could do this. So legally and you would think that is the first thing that they would check but sometimes you know people have so many things going on that they do not really do that.

And clearly it has to be economically financially feasible because if somebody does not benefit it is not going to get the (( ))(27:14) it turns out that you have a tiny budget and therefore no contractor can hope to make a profit in this project who is going to come forward? No one is going to build this project and finally technologically it is great to sort of talk about you know these large bridges that would connect various parts of the country, expressways, etc or desalination technologies that can desalinate for 5 Rs a kilo litre but is the technology available.

So you have to and sometimes it is like one of these things were if you figure out the answer to one of these something else will crop up, so I can do this economically, very cheaply but in order to do so I may to have to locate it in an area where land is cheap and by the way that land is a wet land or a marsh land which is why the land is cheap and therefore I am going to cause environmental damage by doing this, so people will talk to you about places like Pallikaranai marsh where there is a lot of development that has happened.

So maybe from a cost perspective it was cheap but from an environmental perspective it is costly so balancing these becomes a big process and that is the big challenge. So legally feasible you know so we have you know the law of the land we have the constitution we have a body of laws. So legally feasible essentially is something that should be defensible in front of any court of law high court, supreme court or whatever.

But just because it is legally feasible may not necessarily make it politically feasible, a case in point is again go back to the whole bus transit system, is there any legal impediment to us improving our bus transit system and saying that is our strategy to combat you know traffic or is there any legal impediment to me putting a tax tomorrow on automobiles so that every person who owns an automobile will have to pay an extra tax just like a property tax I put in a recurring automobile tax like Singapore has for instance legally they may be nothing preventing me but politically might be a problem.

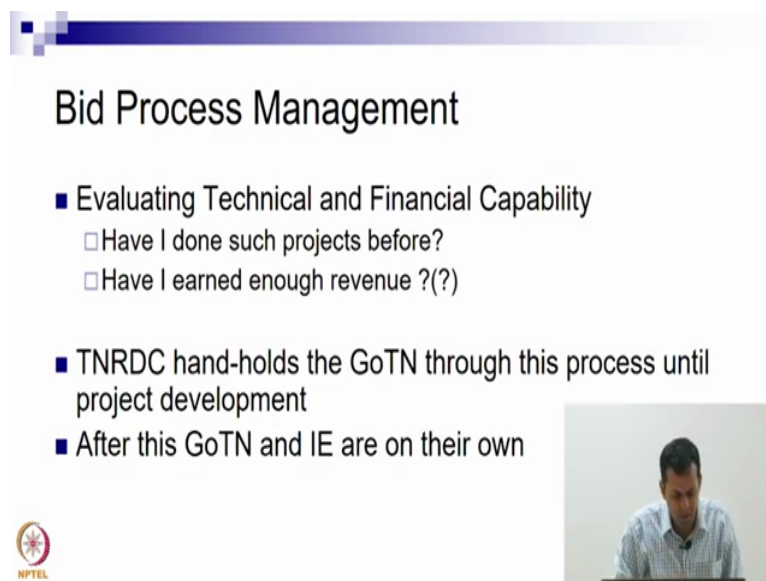
So we talked about water in the last class I have a public private partnership project for water, legally is there anything preventing me? Nothing at all, but it involves me going and telling

people you have to pay per use, you have to pay 100-200 Rs per kilo litre of water, politically that may not be feasible because people might say look if I do that that I can but I will get out voted in the next election.

So legally and politically are often too, no a particular project on PPP I have to come up with the tariff, a particular water supply project on PPP if I have a private sector coming in we have to agree what are you going to be able to charge people so that you can actually make your money so that particular project based discussion and he shows me a spread sheet and says I have to charge atleast 200 Rs a kilo litre for this project to be feasible or 50 Rs a kilo litre, whatever, okay.



Now can you mandate that that can be charged? Yes, you probably can there are powers vested in you to change tariffs, but will you do that politically that will be the end of your political carrier. So politically and legally are two separate things, alright.

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**Bid Process Management**

- Evaluating Technical and Financial Capability
  - Have I done such projects before?
  - Have I earned enough revenue ?(?)
- TNRDC hand-holds the GoTN through this process until project development
- After this GoTN and IE are on their own





## Example of a Project Procurement Timeline – Chennai ORR on PPP

- 25<sup>th</sup> Feb, 2009 – Government order issued to proceed with the ORR on an annuity model
- 26<sup>th</sup> Feb – Advertisements placed in Dinathandhi and Hindu
- 5<sup>th</sup> Mar – Issue of RFP documents
- 25<sup>th</sup> Mar – Site Visit (18 companies)



## Timeline Contd..

- 2<sup>nd</sup> Apr – last date for receiving queries
- 9<sup>th</sup> Apr – Second Site Visit
- 16<sup>th</sup> Apr – Pre-bid conference
- 18<sup>th</sup> May – last date for RFP purchase
- 21<sup>st</sup> May 3 p.m – last date for proposal submission
- 21<sup>st</sup> May, 3:30 p.m – opening of proposals



## Timeline Contd..

- 11<sup>th</sup> June – Informing the qualified bidders
- 18<sup>th</sup> June – date of opening financial proposals
- TBD – Issue of letter of award
- TBD – Acceptance of successful bidder
- TBD – Signing of concession agreement



So then there is this whole bit process management and so on and you guys can read through all of this I put in a timeline for ring road project we once did in Chennai where after all of this was done in February the government issued an order to proceed, so then there is a process, they put advertisements in newspapers, there was the request for proposal documents so even just awarding it is not a simple process it takes time, they arrange for site visits so people could come in and see what is the land like, how much pre construction will I need to do, a couple of site visits then there was a pre bit conference in April and then you know in May people submitted and so and so forth and then the bids were opened in June after all the bids came in and decision was made and then at the time I did not put these dates in but let us.

So it is again just because you have all of these documents nicely worked out does not necessarily mean that you will have a project that you can award the next day even that takes period of time and public private partnerships take longer. So B over BOT again we will talk about little bit more in a class or two but BOT as the name implies is build operate transfer. So what that means is I as a concessioner who is going to so government comes to me and says I want a road to be build, what I like you to do is I want you to bring the money, build the road, why should you build the road? Because I will let us collect some toll on it you will make some profits from the toll, but at the end of it you have to transfer it back to me.

In other words I own it and it is almost like I am leasing it to you, I am leasing this area to you 20 years (build own) build operate and then after 20 years you are going to transfer it to me and even within those 20 years I am the owner, ownership (( ))(31:45) me you are just sort of my you know least operator or whatever, you are taking it from me for a period of time I have given you certain rights so you can perhaps do something with the road, you can do something with the tolls, you cannot for instance take that entire stretch of land and build resorts on it.

So you do not have ownership at all, I have given you certain rights and you can then use those rights make some money and you are going to give it back to me, BOO is build own operate, essentially there I am transferring ownership to you and I am telling you okay here is what you own it now, there is no transfer at the end. Sometimes this build own operate transfer we will say okay you can take certain decisions that you could not do under the BOT model but you still have to transfer it back to me.

So from a governments perspective you have got to think very carefully about whether you want that asset or not, so it is very difficult to be over road because the road ultimately is a public asset, how could I give ownership of it to a private operator so that is something that I will BOT normally. On the other hand if I have a public sector undertaking that manufactures cars you know like Maruti Suzuki kind of equivalent so that I might just want to privatize, I just want to give it somebody and say you own and operate, so you have to sort of look at asset to decide.

So it depends I mean the point is in many cases the asset is not there in the BOO system, so I am asking you to finance it, I am asking you to build it. So you are building the asset, in the BOT you are building it for me, yes you can enjoy it for a bit, get some money give it back. In the BOO you are building it for yourself, so there is no asset that I am giving you, there is essentially may be there is some land and maybe you have to buy the land from me that kind of depends or maybe you have to acquire the land yourself and you put it into the project cost, alright but you are building it for yourself it is build own and operate and there is no transfer necessarily at the end of that project.

So these are all decisions you have to think and make these kinds of decisions. So again the key point of this class is people say plan, you want to build a road fine, call a consultant he will tell you this subgrade layer should be this you put asphalt like this on the top, etc bid it out. Any of us can estimate how much it is going to cost, this is what it is going to cost, get the money, get the project done there are all of these other things that you have got to think about and if you do not think about them, if you build something that is politically or socially completely incompatible very soon you know and we will see many examples in this class of water supply in Cochabamba you know dams in Uganda, etc where Cochabamba is in Bolivia where you will find this kind of dynamic happening.

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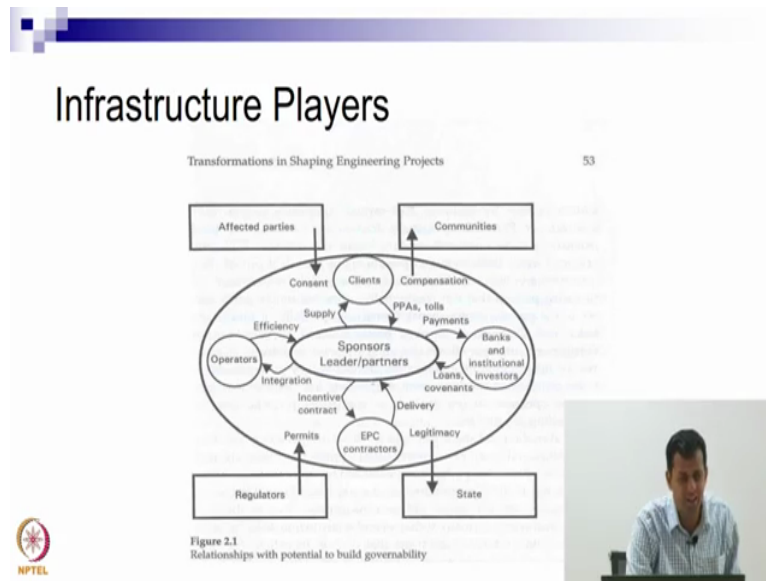
The slide features a blue gradient header bar. Below it, the word "Process" is written in a large, black, sans-serif font. A bulleted list follows, with each item preceded by a small blue square. The list items are: "Design Road - GoTN", "Select Procurement Mode – GoTN", "Invite Bids – TNRDC + PwC + Empowered Committee", "Evaluate Bids (Single stage process) – TNRDC + PwC + EC", "Award Project (Bid variable is Annuity payment. Term of concession is fixed) - GoTN", and "Monitor Project – Independent Engineer". In the bottom left corner, there is a small circular logo with a red and white design and the text "NPTCL" below it. In the bottom right corner, there is a small rectangular video inset showing a man in a light blue shirt sitting at a desk and looking down at his hands.

- Design Road - GoTN
- Select Procurement Mode – GoTN
- Invite Bids – TNRDC + PwC + Empowered Committee
- Evaluate Bids (Single stage process) – TNRDC + PwC + EC
- Award Project (Bid variable is Annuity payment. Term of concession is fixed) - GoTN
- Monitor Project – Independent Engineer

So if you looked at this Tamil Nadu process I mean look at the players lots of players. So there is the government the government has probably called all kinds of consultants to do the design feasibility, etc so all kinds of consultants involved in different phases you have management consultants like the (( ))(34:37) of the world that might have come in right at the beginning to do the larger study or is this even viable, then you get the PWC E and Y kind of consultant to do bit of economical viability.

Then you get our hard core you know CH2M Hill you know Mott MacDonald or even an L&T L&T Ramboll to come in and do the engineering consultancy, how exactly how should this airport be designed, what are the properties of the (( ))(34:59) so different consultants. Then somebody comes in and says I will take you through the bit process then a concessioner or a contractor comes in, so they operate, then there are engineer, there are independent consultants who will monitor for you all kinds of people and then you have all these NGO's who are at the periphery what we call external stakeholders who are there throughout this process keeping watch it is a very complex picture.

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## Political Risk Insurance

- Who are the players?
- Who can get insurance?
- What kinds of projects can be insured?
- What are the rates and terms of insurance?



## Indian Players

- Government – Planning Commission, Ruling parties, TRAI, NHAI etc
- Consultants – Feedback Ventures
- Financiers – IDFC, IL&FS, ICICI, IIFC
- Sponsors – TNRDC
- Contractors – L&T ECC, HCC



So again infrastructure people think of it as government awarding a contract to a contractor and get it build, how difficult is that? Far from the truth, tons of people who are involved in this all putting pressure, the lender is not just giving you money and walking away, they want to really make sure that you give their money back which means they want you to tell them a little bit about the kind of technology choices that you are making, they want to understand what are you going to do if none of the cars pay toll, what if they all just ramp the barrier and go, what you are going to do?

Because finally you will not be able to pay me then what are the precautions that you are taking. So they are not just sort of sitting back in, they want you to so they continual reporting each of these companies have boards so there is lots of players putting a lot of pressure and order for these projects to work and some of them are completely disconnected, NGO's are not connected to banks, but bank's decision on lending will be based on have you managed the potential NGO's there?

Otherwise why am I a fool to give you a lend up lend money to you when you know people are going to rise up arms any moment. So all of these there is political risk insurance and you guys mentioned there are many of these kinds of there are lots of Indians consultants, financiers this is by the way and what these guys put up is only a very partial list the tip of the iceberg, okay so we will stop there.