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

Professor: Okay, good, so again we have talked about all the, well, many of the primary sectors of infrastructure. We have talked about transportation, power, telecommunications, rural, urban, within which we talked about water supply and all of those kind of things, sewerage, solid waste management, housing. And I think essentially the conclusion that we have come to in some ways is that, there is a lot that is being done, many schemes, etc., a lot of money being put in, there is a lot to do. We have not really built out our infrastructure, the numbers are quite staggering in terms of what infrastructure we need and what we have.

And there are all kind of challenges in terms of doing this. Certain sectors seem to have done better than others but in the housing there are challenges with regards to land, water, there are challenges with regards to availability of water, recycling, etc. There is lots of problems that we need to solve globally and then as we start going forward, we will start taking a look at projects because projects are the vehicles through which these assets are delivered. So generally what happens is you have ministries creating what we call programs or missions.

So smart cities is a mission, there are many other like Rajeev Awas Yojna, Pradhan Mantri Awas Yojna, JNNURM, AMRUT, all of these are missions but ultimately these missions need to devolve into specific projects where you are implementing one desalination plant or one sewage treatment plant and those projects themselves will be the arenas where all of these risks and challenges come into play. So when we talk about land acquisition, it is very easy to talk about it in the abstract. But specific projects have specific land acquisition issues and we have got to figure out how we sort of resolve them.

So starting now, we are going to move away from a bit of a sectoral focus and start getting into a project focus. So today we are going to try to do 2 things, one is we are going to talk about, group 4, will talk about what happens on these projects, how are these projects setup, what are the phases that they go through, who are the kinds of actors that play a role on these projects and what role do they play and then I will take over and talk little bit about the basic estimation, the basic economics and finance of these projects.

Most of you I think already have a little bit of background in economics and finance, so that is one of the reasons I will not go too deep into it but it is worth looking at again, ok. So group four. Who is group four? So who is coming up? Nikita.

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Student 1: We have seen what are the different schemes that government can implement throughout these lessons and previous PPTs (powerpoints). Right now we will look at how projects are put together. Firstly, we will go with phases and then we will go with players. Firstly, concessionaire's perspective. What is a concessionaire? Who is a concessionaire? Concessionaire is a person who operates business under some concession from a granter. Granter maybe some government or some private sector, anyone maybe the granter. And there are different types of concessions, I just named two of them here, BOT and BOO.

BOT is Build-Operate-Transfer. BOO is Build-Own-Operate and there are even mixed concessions. And if we go through phases, there mainly three different types of phases, development phase, construction phase, operational phase, we will go through each one of them.

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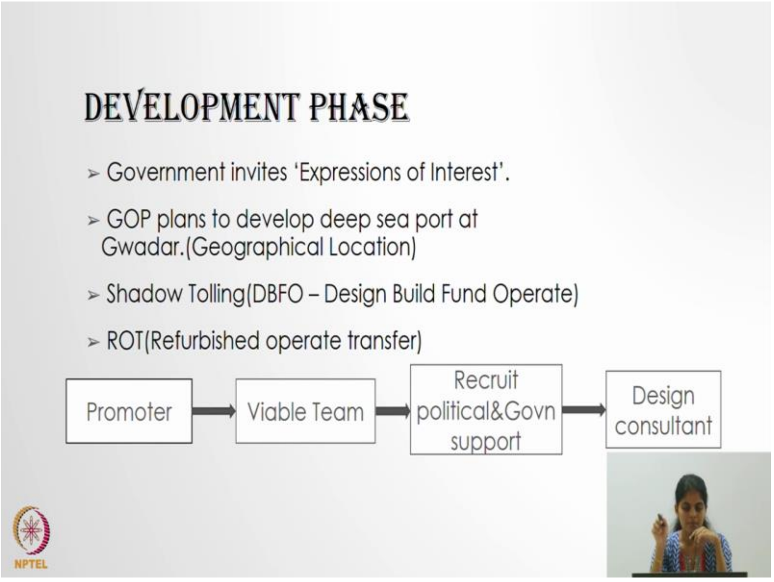

Firstly development phase. Basically, I will give the example. We in future or our parents or relatives, when they are to buy some land, firstly they will look at the future value of that particular land. The same thing happens with the government. If it wants to invest in some project, they will look at the future value, what it will give to them. So after seeing that, they invite expressions of interest.   I will give the same case study which have been given in our material. There government of Pakistan, it plans to develop deep seaport at Gwadar.

I will show the geographical location of Gwadar. So, if we see Gwadar, it will be near Iran, like Iran and Pakistan border will be there, it will be near Iran. So, if you see the geographical location, it will be near to Gulf countries and even it will be very near to East African countries. So, by that we can say, if we develop a deep seaport there, it will become hotspot for all the exports and imports. And there is also a road being developed into the hinterland right now. So, not only the exports and imports from Pakistan, from also Central Asian states and also Pakistan. There is one more press positive point for this Gwadar port, there is a land, development land in and around that Gwadar place, so wherein we can actually build export processing units or trans-shipment yards. So these are all the things that will be taken into consideration before development of some projects. This is just one example. And generally, so government has decided to build deep seaport at that place and then it invites expression of interest to all the people and what happens.

Then some lead contractor or promoter, who is interested in submitting preliminaries, who is interested in doing the project wants to submit the preliminary submission, preliminary report, whatever is there. What he has to do is, he has to build up a viable team and what he does is, he will promote his concept to all the potential partners out there who are interested to work along with him. And there will be different types of management cultures like financial, legal, technical, all those things. He has to reflect them, he has to be aware of those all cultures and he has to reflect and he has to make such a team which has unique objective of developing that particular project. And after once he has got a viable team, next what he has to do is, he has to recruit political and governmental support. Because if he has low government support, many projects, they may even take a lot of time to complete the project or even they may never be able to complete the project.

So that will be the problems faced by them. And during this, this all is a development phase and during this whole phase, the lead contractor who or promoter whoever is there, he recruits one design consultant who will be working along with the contractor's team on the design. Because contractor knows what exactly he wants, so consultant will be working along with him to actually satisfy the contractor. And contractor should make sure that this design consultant, whatever the cost that are incurred to him during different designs, that all should be reimbursed by the contractor. That is about development phase.

And after that we will, like shadow tolling in developed countries like UK or US, what happens is, there will be already plenty of roads. Like in developing countries like India, then maybe not so many roads, very good roads, but in US or UK, there will be many developed roads. So if a person wants to build another road actually, this already you taught. So, if a person decides to build separate road and if he charges a toll on the people who are actually passing through that road, then no one will go through that road, they will obviously opt for other road, where they do not charge at all.

So what happens in shadow tolling is, wherein government will subsidise or they will give profits to contractor based on the traffic, proportional to the traffic, whoever is using that particular road. And there is also ROT (Rehabilitate-Operate-Transer), ROT is mainly used for like, there will be many roads which will be damaging every year. So, to develop those roads, this concession will be used. And generally it happens that ROT projects will be shadow toll. Meaning, the projects which are covered in the ROT, they will be subsidised by the government, generally it happens like that. Or else both the road which has to be developed and which needs to be repaired, both will be given to the same company so that the shadow tolling from one road will be used to subsidise the other project, it happens like that. So, this is all about development phase. And next comes constructional operational phases.

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Construction phase depends on the project basically, the time which it takes. Basically throughout the construction phase, generally what we will see is, what we will observe generally, national highways, state highways these will be in a much better quality. And you will be surprised in India, where corruption is there, how can they possibly maintain this quality of roads? So, one of the reason is because of this T element, Transfer element in BOT formula, because that T element, it actually gives authority to granter, whoever give concession to the contractor to specify what he needs at the end of the project.

So, that is what I said, construction phase will be carried out with transfer element in the BOT formula in mind. And next comes operational phase. Operational phase is longest period of time in the life of the venture. Generally during the whole operational phase, the cost incurred will defer throughout the phase. Initially, there will actually recruit through consultants, a few specialists basically to prepare manuals and everything, so that later on they will recruit normal engineers, normal people and they will train them and they will recruit them.

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Next comes planning of major infrastructure projects. So, if we consider major infrastructure projects, it happens that, they need to undergo several approvals before they are getting implemented or they are getting finance. So a typical, complete planning and implementation process involves these following sequence. First is preliminary report, feasibility report, preparation of contract documents, activities during construction and then operation. I will go through this. Firstly preliminary report. The main objectives of this preliminary report will be, at the end of the preliminary report, we will be able to know is this project possible? And we may even be able to know what are the approximate cost that will be occurring throughout this project. And generally preliminary report, they will start with the data which is already available in laboratory and so and so resources. And later on they will actually come on field and they do field surveys to just confirm that report what they had made earlier.

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And next comes feasibility report, office studies versus field reconnaissance and surveys. And next comes field report, feasibility report. Field feasibility report, there will be very much detailed information about the technical equipment, and financial and economic analysis and environmental analysis, eveything. At the end of feasibility report, a sponsor will know whether to exactly finance or terminate that project. So we will have clear idea at the end of feasibility report. And there is one interesting fact, there is a difference between financial and economic analysis. Economic analysis, we will actually see the profits, benefits and losses that will be incurred from the nation perspective, whereas in financial analysis we will see from a perspective of some company or entity, enterprise. And throughout this process, we even have to consider this institutional and legal structures and constraints, wherein if you want to move the people from that place to another place or else if a few people are getting affected by your project, so you have to consider those effects.

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And then comes contract documents. Contract documents include plans and specifications. So mainly, after feasibility report, they will obtain tenders from all contractors, different contractors will be there, I do not know exactly. But they will prepare plans and specifications to obtain the tenders and the relative responsibilities and risks are assumed at that stage by both contract and sponsor. And next comes the construction phase.

There, construction phase is same like when we discussed already. Here we will discuss about two costs that will be incurred during the construction phase. Before investment, people will actually discuss about, for investment they will discuss about two costs, one is direct construction cost and the other is contingencies. Contingencies are nothing but the costs that are possible to incur but we cannot tell with certainty. Like suppose if floods occur, there will be obviously few costs that will be incurred, but we cannot tell whether the floods will come or not. And then next comes the operation period, initially they will recruit a few consultants and engineers and they will prepare manuals and they will monitor the performance and later on they will recruit normal engineers, normal people and they will train them and they will actually monitor.

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Now this is about the phases and we will come for players. In that firstly, export credit agencies. So export credit agencies are the financial intermediaries between government and export agencies. What they exactly do is, they facilitate the exporters. So every country wants to be at edge, meaning, there is a lot of competition for a product, if you export from other countries even. So these people, they will help the exporters basically. What does that mean is, agencies that provide financing services like guarantees, loans and insurance plan to the domestic companies in order to promote exports from the domestic country.

So this is export credit agencies and main purpose is to provide a level playing field for all the exporters. And there is even a negative aspect for this, because if a importer defaults, if he does not give the money back to the exporter, then these people will be covered by export credit agencies. Exporters will be covered by export credit agencies but the money will be, taxpayers will paying that money in that case. So the taxpayers will be at loss firstly and secondly importers, they will be even at loss because generally importers will see at price and quality, while before buying that particular product. But what happens when financing is given is they will even consider financing. So, quality and price are a bit neglected we can say. And there have been many treaties, there is one international treaty signed by most governments. And one organisation is known as Organisation for Economic and Corporation Development. This this is been signed by few countries, I think 36 countries are part of this, of which India is not a part of it. And this main purpose is to promote all the norms and regulations.

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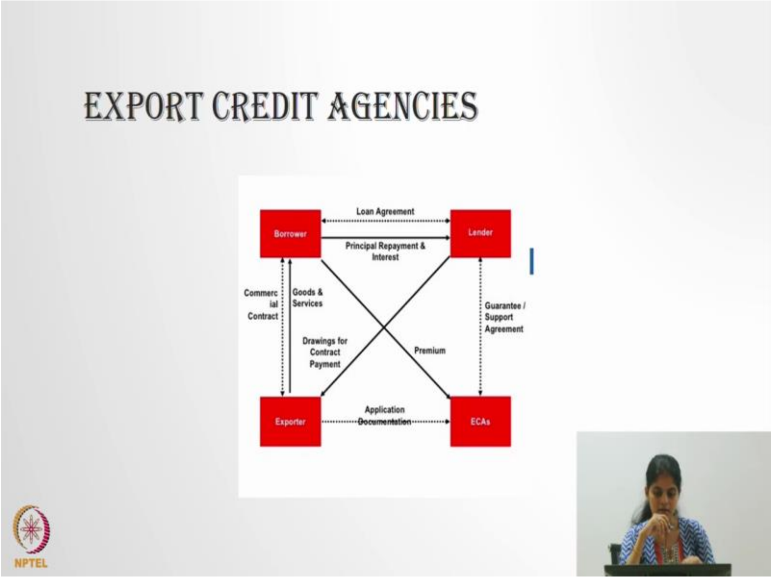

And this is just how exactly the money flows through export credit agencies. If there are short, if the money is like short-term, short-term loans, long-term loans are there. If it is short-term there will be direct transactions or else there will be an intermediary to whom the government subsidies or they will be subsidised lately, wherein they will lend loan at lower interest rates but yet there will be subsidised lately. So, this is exactly flow diagram.

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And multilateral financiers, this is one more player actually. What exactly is multilateral financiers, it is the financial institutions created by the group of countries that provides financing and promotional advising or professional advising for the purpose of development. So these, we we may have heard about many regional development banks like Asian, African, Caribbean and even we will hear about IMF - International Monetary Fund, World Bank, everything.

So these all are multilateral financiers, most of which, the main goal might be, the main vision might be to reduce poverty and to promote, like not to promote, to develop all the sustainable goals, whatever are there, like employment, self-employment in all the countries and to reduce the differences, economic differences between the countries. And IMF, it has been established in 1944, in 1930 we had Great Depression and in 1944 it had been founded by US basically, in order to ensure monetary stability in the world economy.

And World Bank is even founded at the same time, around same time. And in IMF, initially there were 29 countries, at present there have been, there are 189 countries. And for low-income countries, they will get loan at zero percent interest rates from these banks. And World Bank, World Bank is actually a group of 5 institutions, there are 5 institutions IBRD (International Bank for Reconstruction and Development), IDA (International Development Association), IFC (International Finance Corporation), MIGA (Multilateral Investment Guarantee Agency), ICSID (International Center for Settlement of Investment Disputes). So these 5 institutions, they constitute to form a World Bank group. And the vision is same, to reduce poverty.

What they will do is, financial and technical assistance for developing countries. And Asian development bank, there are many regional development banks, of which Asian Development Bank is one of them. Asian Development Bank initially started with 31 countries, but right now it has 69 countries and of which 19 countries are other than Asian-Pacific region, I think, mostly North American. And it has been founded in 1966 and India takes so many loans. After China, India is the second-largest loan taker from Asian development bank.

And there are lot more players, next will be continued by Parthik, Akash.

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Student 2: So, Nikita explained about the phases in any project and also about the few of their players. I will be explaining in brief about few other players who are involved in any project. Risk insurance, any project when it is undertaken, the expense is too high. So there is always a risk that any problems might arise during the project which might cause the project to stop or fail, government problem, some monetary problems or anything. So company when it undertakes a project is taking a huge risk.

So whenever it undertakes a project, it takes a certain insurance, this insurance typically provides coverage against the risk such as currency inconvertibility, expropriation and war and is available for from a number of resources. There is a certain premium fixed depending on your previous history and the credit score you have. Next will be the project companies, these are corporation under a operating company.

These project companies are the ones who, who undertake and complete the building construction of any any project. They are the direct or the indirect owners of any project. Some of the examples of project companies might be the Delhi Metro rail and NTADCL (New Tirupur Area Development Corporation Limited). These are mostly most of these projects companies are subsidiaries or joint ventures of the operating companies which are huge companies. Then next player which comes in mind is the banks. Banks are the financial institution licensed to receive deposits and make loans. So when, not most of the companies have the complete capital to start any project. So banks kind of provide the loans and whatever the capital they need to start a project. They charge a certain interest rate on it and depending on the later stages, the company is trying to repay the banks in installments.

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Other players involved, the government agencies. So taking or considering just Chennai, in every city in India and all over the world, there are different government agencies. Some of the government agencies in Chennai include Chennai Metropolitan Development Authority (CMDA), this is a public sector undertaking of government of Tamil Nadu. This mostly involves, undertakes the metropolitan development buildings in infrastructure and all. Next will be the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB). The water supply, providing water and the sewerage management in the city of Chennai is managed by this board. Next is the Greater Chennai Corporation, this is a civic body which is headed by the Mayor, who presides over 200 councillors, each of whom represents one of the 200 wards of the city. The when Chennai Metropolitan development and CMWSSB undertake a huger problem, bigger problems, Chennai, Greater Chennai Corporation takes care of the problems which are mostly locality specific and comes, considerably minor than these problems and issues.

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Next player will be the equity investors. So banks provide loans to the, any of the project companies which are undertaking a project but equity investors, what they do is they, we have to repay the banks and equity investors, they are the people who invest money in a company in exchange for ownership of the company. Such as whenever a project is started, and a certain person thinks that, okay, this project will be successful and we will be able to earn some revenue about it, they tend to go to the project owners and giving such as, we will give you some amount for a certain stake in this project. But the equity investors have no guarantee for return of their investments most of the cases. So, in they completely, the investment they give is completely based on their analysis whether the project will be successful or not. So if a company goes out of the business and the project collapses, the equity investors mostly lose all of their money.

Another player involved is the transaction advisers. So, transaction advisers does all the detail financial, technical and legal work required to prepare the project sponsored to implement the proposed project. So most of the work about the the main task the transition advisors had to do is calculate the risk all the legal, technical work, others that is required for the project. The project companies hire this technical transactions advisors in order to reduce the risk and check out, it means whether, whether it is the project is feasible or is it profitable for those, for the project company.

There are few other players, Parthik will explain the other players in detail.

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Student 3: So, the next players are NGOs (Non Governmental Organization) and the societies. These these NGOs and societies gave people the power to contribute government policies. Some of the examples are Friend Of the River, it's a California-based society, which helps people influence the policies which are made for a river. Next is Citizen Consumer and Civic Action Group. So it is based in Bangalore and it's main purpose is to consolidate the commanding position of consumers in the working of the economy. So they have basically a few agendas on which they have proper roles on how they will implement them. Next is Seed Trust, to alleviate poverty through job creation and integrated community development. And another example is Janaagraha, then there are regulators. We have talked about telecom regulator, which is TRAI (Telecom Regualtory Authority of India), so there are also

regulators in other infrastructure development parts. One is AERA, Airports Economic Regulatory Authority of India.

It it determines what should be the tariffs for services that planes provide or to determine the amount of development fees and also the passenger service fees. They also have other roles and responsibilities, but main are these 3. In Power sector there are CERC, that is Central Electricity Regulatory Commission and the respective state commission. These commissions intend to promote the competition among, among different players and try to make a market place, the ideal land, not make it a monopoly one.

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Next is risk insurance, Akash talked about it. So I would just like to say key insurers are Ernst and Young, Marsh and these people basically analyse what would be the cost of the project of the whole project, how much can be insured against it, what would be the benefit we can get out of it and etc. So there can be other several issues while doing this. So they have to determine whether the margins are sufficient to cover the cost and risk associated with the project. And putting in place suitable processes to assess and manage infrastructure debt investment.

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And the 3rd is investing in infrastructure that is best suited to the balance sheet and risk profile. So, they cannot afford to make a loss in such big projects. The one which you guys might be most interested in are consultants. Few examples, Deloitte, PWC (PricewaterhouseCoopers) and McKinsey. So these are a group of very highly specialised people in different sectors like government policies, regulations, public-private partnership, process involvement. They have worked with one of the best, and they have worked at the top of their industries and have huge amount of experience in whatever they are doing right now. These sum up the total players which are there, thank you.

Professor: So, very comprehensive presentation, so maybe we will not spend too much time on it. But in future do try to stick to sevenish slides about 10 or so minutes, so we can have more time for discussion. So best thing to do is, if you are, looks like you guys are preparing separate slides, putting together, I think you should talk about what goes in, what goes out, because there is also some overlap. So one of the things I want to point out is what Akash spoke about as transaction advisors, more or less the same as what you spoke about Parthik as consultants. They are more or less exactly the same, what our transaction advisor does, some of those big process management etc are the same. So that was one. Couple of other, you know just quick things to point out, the Chennai Metropolitan Development Authority and most metropolitan development authorities actually do not build. They actually provide the guidelines, permission, they do the zoning, they do the master planning, the building will be done by the Housing and Urban Development Department, the Tamil Nadu Housing Board in this case, the Tamil Nadu Slum Clearance board. So, there are other agencies that work together. And there are few other things but overall I think very comprehensive.