Financial Management for Managers
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Lecture 29
Estimation of Project Cash Flows Part 1

Welcome all. So, now we will move to the next part of this learning in the Financial Management and the next part is that is the estimation of the project cash flows. In the capital budgeting we saw that the cash flows were given to us and we learned about that how to evaluate the say any capital investment proposal based upon the cash flows which are available to us.

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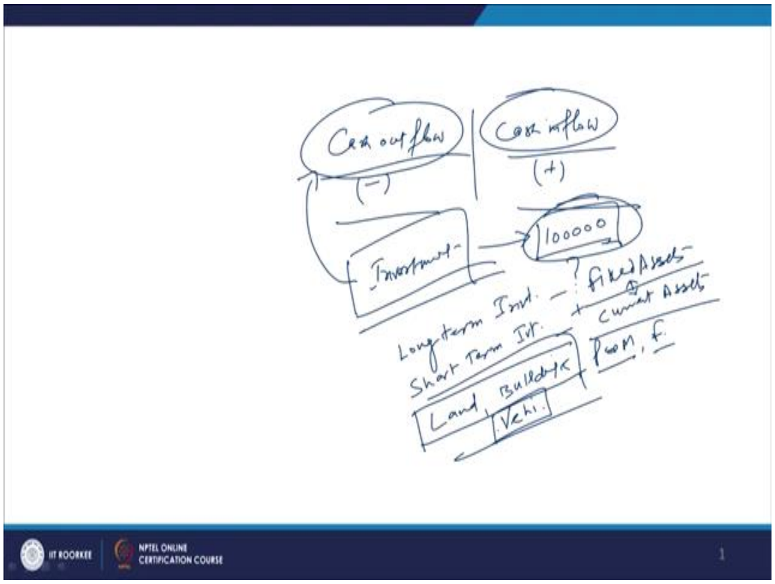

So, in that process we had that two kinds of the cash flows were there, one was the cash outflow and second one was the cash inflow, these two cash flows are available with us and once these two cash flows are available with us this we are showing in the minus terms and this we are showing in the plus, plus sign.

And then we are say the purpose in the capital budgeting was that we had to compare that the present value of the cash outflow has to be equal to the present value of the cash inflows that was the minimum basic requirement and if any project meets that requirement, then we say that yes, there is a point or there is some merit in looking into the project or considering the project. Otherwise, there is no point considering the project or looking into the project.

So, there the comparison was between the cash outflows and inflows and the entire process we did and learned there was that we discounted the cash inflows especially because cash outflows we considered they are in the initial period. So, they are equal to 100 percent but the cash inflows coming in in the subsequent years, because of the time value of money, their value goes down.

So, you cannot consider the cash flow coming at the end of one year equal to the cash flow which is available with us currently or maybe coming back to us after two years or at the end of three years or at the end of the four years that is equal to the current cash flow or the cash or the funds available with us or the cash available with us. So, it means there we apply the concept of discounting.

So, we calculated the discounted value of the cash flows and then we applied that to kind of criteria discounted criteria and the non-discounted criteria for evaluating the capital investment proposals. Now, one million dollar question here arises is, from where these cash flows come, this is a very important question.

They are not served to us on a platter means to the finance people or to the financial managers. These cash flows are not served on the platter it is a very, very complex job. It is a very, very tedious job and largely projects succeed because of the right estimation of the cash flows, or many times project failed because of the wrong estimation or committing a blunder or error in estimating the cash flows.

So, it is a very, very important job, it is a very, very important part, it is a very, very important component of the overall Financial Management or evaluation of any capital investment proposal. And you would agree with me that cash flows largely, when you talk about the cash outflows, cash outflows, we talked about that in terms of investment, how much investment is required to be made in any project.

That is a very important consideration and for arriving at this figure of investment, because in the, if you go back in the initial discussions in the financial management or the financial decision areas, we discussed that they are the two important decisions to be taken in the financial management and we learn about that in detail while we study the say overall this concept of the financial management or the area of the financial management, two decisions are, one is the investment decision and second is the financing decision.

And investment decision we talked about is that for example, any project we want to take up whether it is new for the first time, it is a new firm, new business organization, maybe a startup or maybe in any form of organization is created for the first time, even then, and even if it is a project being created by or being undertaken by an existing firm, in both the cases the estimation of the cash flows is important.

So, in this case, when you talk about the investment decision, means we have to arrive at on some figure of investment and this figure of investment is say 1 lakh rupees here we need 1 lakh rupees to establish this project or move into this kind of the business. Now, from where this 1 lakh rupees has come up, who has found out or how this we have been able to arrive at? Means there should be some basis for it and for estimation of the cash this investment will cause us the cash outflow.

This will cause us the cash outflow and to arrive at this figure of the 1 lakh rupees or 10 lakh rupees or 1 crore rupee or 1 million rupees 1 hundred million rupees or 1 billion rupees that will depend upon some estimation and we have to arrive at on these estimates on some basis. So, when you talk about the investment in any business largely we have the two kinds of the investment, one is the say long term investment. This is called as a long term investment and second investment is called as the short term investment or you call it as the current investment.

So, two kinds of investments are required to be made in any business and for these investments, we have to work out, we have to arrive at on some basis and we have to find out these estimates on some basis for say taking the decisions. So, it means long term investment is we are going to make it somewhere in the fixed assets or the assets which have the long term value, which has the value or say not value is a high value and the very long life you can call it as it has a medium to long term life.

So, we have to make the investment into these assets and then we have to make investment into the current assets or the short term assets. So, they are called as the current assets or short term assets and these assets or the investment in these assets is equally important to support the investment made in the long term assets.

So, they are means reciprocal to each other means current assets support the fixed assets and fixed assets need the current assets, so it means sum total of this when you talk about is this becomes the total investment. So, to arrive at this figure of maybe whatever it is we call it as, it has to be means found out on some basis.

And that basis means when you talk about the fixed assets, what are the fixed assets, land, you need for establishing any manufacturing facility or any organization, any business undertaking you need the land, then you need to create the buildings on that, then you need to go for the plant and machinery, then you need to go for the say furniture and then you need to go for the say vehicles, like. So, means so many different kinds of the fixed assets are required.

So, maximum thing we can do is that if we are a new firm or we have the lesser amount of the funds available with us, we can have, we can means not make investment into these assets, maybe land and building, we can hire some say existing building maybe if it is some building is there and it is lying unused or if it is available for renting purpose or leasing purpose this can be if it is a new firm, this can be so you, so that immediately you can avoid the making investment into land and constructing the building.

But you need to have the plant and machinery, you need to have furniture, you need to have vehicles and so many other kinds of things. So, ultimately means whatever the level of the fixed assets we work for, we have to create and that will cause the investment and investment is means ultimately, it is a synonymous to the cash outflows, this is one. Second part of the investment you require for the current assets.

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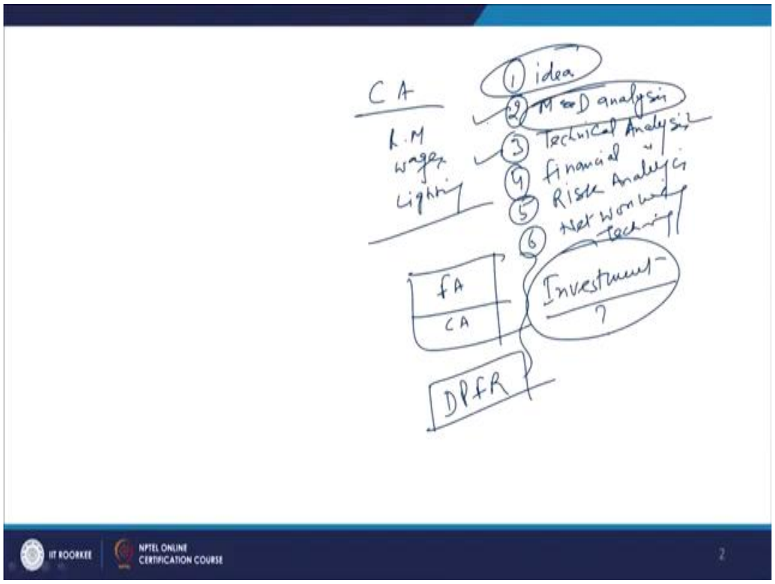

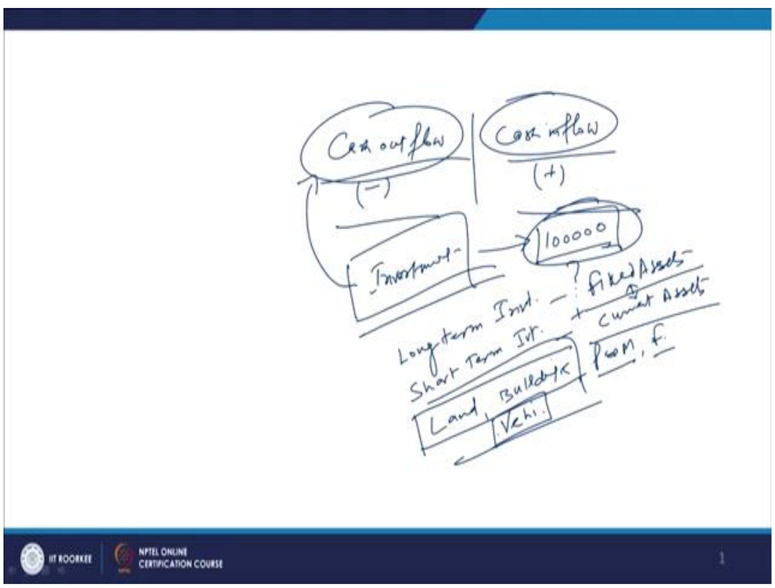

Now, the current assets are like when you talk about the current assets, what are the current assets? We need to have raw material, we need to have, to pay for the wages of the employees because if the raw material is not there, what kind of the plant you are going to have, workers are not there to run the plant then means why you are going to have the plant and then to have the raw material and then you have to have the say lighting and other kinds of thing.

So, means all these for running of the plant and for the successful implementation of your business plan or the business objectives, you need to create give shape to this organization, and this organization has a means a structure, here you have to create the fixed assets, here you have to create the current assets and some total of this will require something which is called as the investment to be made and when you are making investment, it is causing the cash outflow you have to estimate this.

So, how much investment is required to be made in say for for giving a shape to a particular kind of the business. So, how would you make estimate for that? So, we have to do different kinds of analysis, there is one before undertaking any new project maybe by the new firm, new organization or by the existing firms you prepare one report which is called as a DPFR, this is called as DPFR - detailed project feasibility report.

And this detailed project feasibility report has many say important components or many important say parts of it. First of all is the idea means inception of idea, this is the first important thing we should have for say moving into the business, maybe by existing firm or by the new say firms.

Once you have idea, then we will go for the market and demand analysis, market and demand analysis, this is the second thing, then you have to go for that technical analysis, you have to go for the technical analysis and then after that you have to go for the next thing which is called as the financial analysis.

Next, next thing is that we have to go for is the financial analysis, we have to make the financial analysis this is called as the financial analysis, then we talk about the risk analysis, then we talk about the risk analysis and so on and so forth like then we go for the net working techniques or other kinds of things are there. So, means net working techniques we have to use for other kinds of things, because we have to exercise that control over the project also.

So, it means everything once your idea is there in the mind, then that idea whether that idea is saleable in the market, is acceptable to the people in the market. Means either you can convert that into the product, you can manufacture a product or you can say render a service, means you can create a service, generate a service and you can start giving that service to the people.

So, it means idea will be something like that means other than this is not possible, largely we confine our analysis and discussion upon the two things, either we are going to have the manufacturing firm or we are going to have the service sector firm. So, it means that idea will be for example, when this owner of the OYO rooms he say, moved into the business and then he thought of say starting this say the hotel service.

So, it was a, it is a service sector idea, and he tried that idea, it worked very well and now it has become one of the biggest groups serving the country. Similarly, when the owner of this Ola IIT Bombay graduate, if you say think about how you got that an idea, he means graduated from IIT Bombay and then he was working in some companies he moved to US and then he had an idea about the Uber because Uber was already operating in other countries including US.

So, he got an idea that why not to start this kind of the cab service in India also and he started Ola . So, whatever this, for example, during this say demonetization days even before that, even before that, we have this say Paytm. This is again a service sector product and Paytm was invented and then this service started and then means that Mr. Sharma, the owner of this Paytm, or the person who created this Paytm, he had an idea in the mind that if I create a app which facilitates the receipt and payment of funds by the people so it can work well.

So, it means once you have an idea in the mind, if you have an idea in the mind, maybe for manufacturing your product or I many times I refer to you is about the question why is idea about manufacturing Nirma washing powder or then I discuss with you is the Fruit Beer idea by the Anchor group.

So, these are the ideas means, come to somebody's mind and the basis of ideas is that if we are in the developing countries market that we draw some idea on the basis of the developed countries markets, the products and services, which are very much prevalent there, very common there and they have not even say come up to this country or in this economy, we can have an idea that yes, this service can be of means use by the people in India also. So, why not to start this service or move into this kind of the business.

So, means, you have to, first of all have an idea, once that idea comes up in the mind and we become serious to convert that into the business. Then after that the million dollar question is conducting the market and demand analysis and conducting the market and demand analysis is a very, very cumbersome job it is a very very complex procedure.

Who is going to buy my product? Because manufacturing or generating of any service is not difficult these days. Manufacturing of any product or generating of any service is not difficult these days, maximum difficult part is that is the selling of that product or service in the market and for that we need the market we need the demand.

So, we have to go up to the people being the potential users of your product of the service, we have to conduct the market and demand analysis and on the basis of that we will come to know whether people are or people intend to buy any kind of the product or the service if it comes up or not.

So, it means market and demand analysis is the backbone of success or failure of any project. For example, in case of the Nirma, Krsanbhai never did any market or demand analysis, what he did it means not actively but passively because he first all had an idea. So, he started converting that into the finished product and he started distributing amongst the people say living in his vicinity, that he started means distributing his to his relatives, and then he say increased the scale.

So, when he got the response is very good. So, in a way you can call it as a market and demand analysis, he manufactured at a very small scale a few kgs of the washing powder, he distributed it amongst the people and people liked it. So, it means that is also a sort of market and demand analysis, after say, conceiving this idea, converting into the washing powder, he did not even start manufacturing at the mass scale or the largest scale.

No, he did not start that production, even if it is why some existing company even they are the resources also Karsanbhai did not have the resources at that time, but even you have the resources also, then, you cannot start manufacturing or selling at any large scale until, unless you are sure about the acceptability of the product.

So, whether actively or passively we have to do the market and demand analysis and once the results are quite positive, and we are able to find out that yes, initially in the first year this much of demand we can expect, because we have to estimate the demand, we have to adjust that demand against certain factors.

And finally, we have to arrive at a figure whatever that market and demand analysis we do, maybe ourselves or be the help of somebody else, we can refer it to some consulting firms also we can get it verified, (())(16:25) by them also, and then we can arrive at some conservative estimates that yes, has this much of the demand for our product or service could be there in the market.

The next thing is, once the market is means the responding or expected to respond and we are expecting some say positive results from our business. The next thing is we have to go for the technical analysis that now if I have to give shape to this organization, this firm, how much investment I have to make. And that investment when you talk about that investment has to be made into this your fixed assets and current assets.

So, it means on the basis of market and demand analysis, you are going to take the say convert that idea into the business, it means you are taking sort of a decision which is called as the say investment decision, which is called as the investment decision. Now, we have to know the quantum of investment and in a way you call it as estimation of the cash outflow that in the initial period 0 period, whenever we want to give shape to the project, whatever the investment is required, and we have to estimate for that figure.

So, it means, when you are estimating for that figure, it means you are estimating for the cash outflows required at the stage of building the project. And that technical analysis to a sorry, this investment requirement to a larger extent will depend upon the technical analysis, because technical analysis guides us that how much land is required?

How much, say, you are say building is required, what is the size of the plant and machinery available in the market and be required for that what other say fixed assets are required, furniture is required, vehicles are required, everything we have to make estimates of and then we have to then sum it up.

So, you can say that yes, this is the level of the fixed assets I need to create and when you convert those fixed assets into the financial terms, so, that gives us the say requirement of investment in the long term assets or into the fixed assets and on the basis of that fixed asset estimate.

You then estimate about that to efficiently properly run and make use of these fixed assets and to say go to the fullest capacity utilization in the business, how much working capital I require, how much short term funds I require? I need the funds for material, I need the funds for paying the wages. I need the funds for paying for these utility and say water and then for the other say ancillary products.

So, total working capital we have to estimate, so total invest we have to estimate and that investing, estimating the total investment and then we we arrive at some figure, which is called us investment requirement and in a way you call it as a cash outflow. So, then we are saying here, that this cash outflow, when we are talking about the cash outflow, we are going to make.

In this case you are saying that this investment of 1 lakh rupees, I am estimating here that initial investment, total investment in the fixed assets and current assets required is 1 lakh rupees, it means I have some basis on which I have arrived on this figure and I am in a way estimating about the cash outflows.

Similarly, then, we will now look for, forward that once we take the investment decision, then how much time will it require to build that project and means finally gives shape that project and how much time it will take to start working or commissioning of the project, and after that production coming out of that say plant or that project and then going to market and giving us the cash back, which is called as the estimation of the cash inflows and cash inflows will largely depend upon something, which is called as the market and demand analysis.

It is called as market and demand analysis because larger the demand for your product in the market, higher would be the sales and higher would be the cash flows coming back to the firm. So, estimated because many times what happens when we go for conducting the market survey people because they do not have to buy the product at that time. They do not have to shell out any money at that time.

So, you are simply asking their opinion, and they say yes, if this kind of the product comes up, or this kind of the service comes up, I will be the person will be buying or using that service, but in the real sense when the product comes up in the market, then it it creates the say the real situation. Now, whether people are positively responding for that, or they are dormant or they are negatively responding for that.

That is why what happens that many times when the existing firms when they launch the new products in the market, because for them resources are not the problem, for them the business acumen is not the problem, for them the technical know-how is not the problem, they already are into the business and they want to either add a new product into their existing say line of the products or they want to go for the expansion or entering into the new markets.

So, what they do is, they have an idea in the mind they test it not by market and demand analysis, but through other modes. For example, that product is already existing in the other countries markets or within the same country, but in the other segments. Now, they have to take the product either from the developed economy to the developing economy or from within the country say India from the northern India to the southern India.

So, it means already the product is being manufactured, either by themselves or by somebody else. So, we if we also start manufacturing it, if it is not in India, we bring that product to India or that service to India, we start say generating or manufacturing it.

So, what we do it, initially we manufacture it at the small scale and then we start distributing to the people as a free sample as a free sample and people when they start liking it responding to it many times for example, when you move to the market you might see that some small, means many companies, means different, means the stores we visit these days or malls we visit these days many companies have these small outlets they are may be, they have introduced new kind of the fruit juice and they are means offering you a glass of a juice without charging for anything for that. What is that? That is called as a market and demand survey.

Because once you use that product and you know the price, so you may you may find that there is a value in the product. So, later on next time you start asking for that and you become the say the customer for that. Sometime when we move to the again to the mall or some other place, some baby food is available there. They are, means they have brought it up and they start distributing as a free sample when you take it to your home you use it and then the baby responds very well we become the customer.

So, sometimes means we are sure about the success of the product, investment is not a problem and marketing is also not a problem because the firm is already existing in the market in that case what we do, we manufacture the product, means remaining sure on the basis of the other say sources and then we start distributing it as a free sample and then when the response starts coming up we start selling it in the market.

So, this is a one way of looking the things and sometimes it may be possible that we are very sure about this success of the product but it may not means a response like that as the Fruit Beer project of anchor it failed. So, initially they also thought about that Fruit Beer is a very common product being used in the other countries by the people so why not it will be saleable in India?

So, they means they did not go to the people with the product but they means conducted the market and demand analysis, technical analysis, financial analysis they gave the shape to the project and finally, means when they started distributing it even free of cost, product failed, people rejected the product because means we are not to buy the fruit beer for the price of the normal beer in the market and the purpose of using beer in India is different as compared to the say the say fruit beer and the intoxicated beer, alcoholic beer.

So, market demand analysis either you do it theoretically or you do it practically both ways is important. And that tells us how much cash inflow is going to be there with us, because then the demand is going to increase then over the years, the cash inflow is going to increase. So, it means what is happening here, the estimation of the total investment is a cash outflow and total means inflow is by way of selling the manufacturing and selling the product in the market and getting the funds back.

So, we are talking about the cash flow. I am not talking about the profitability, there is a difference between the profit and there is a difference between the cash flow, cash flow is the wider term as compared to the profitability, profitability you arrive at after say from the sales you subtracting everything, there you subtract the manufacturing cost, you subtract the distribution cost, you subtract the say that the technical costs in the form of depreciation, you subtract the financial cost in the form of interest.

And finally, even you subtract the taxes also to be paid to the government. And finally, we arrive at maximum profit before tax and profit after tax that is something different. When you calculate the cash flow, we use the profit and when we start from the profit and then we backtrack into the profit, we add back the financial expenses like profit and then interest cost and then we add the non cash expenses also, and then we subtract the interest cost again.

So, then we arrive at it means profit is the one part of the cash flow and cash flow is wider term which includes profit, it includes all non cash expenses and then we come to know that at the end of the first year, how much cash will be flowing in to us or back to us, second year, third year fourth year. So, that way the cash inflow analysis has to be done.

And cash outflow is normally we assume that in the conventional projects, in the conventional say capital expenditure ideas or the projects the cash flow occurs in the beginning of the say period and that is in the 0 period in the current year in the capital budgeting problems also you have seen that we are assuming largely we are assuming that most of the projects are conventional in nature and whatever that cash outflow has to take place, that will be either in the 0 period or in the beginning 1, 2 or 3 years.

Because we keep on building the project. For example, let us say very large project, petrochemical project or maybe the refinery of the say petrol products, petroleum products. So, building a refinery may take 2 years a period of time. Similarly, building a cement plant may take the 2 year's time.

So, during that 2 year's time or 3 year's time or 1 year's time, we are not getting any inflow means only outflow is going out and we are giving shape to the project, we are building. For example, hydro project, it takes say years to build that project and at that time only the cash outflows are there.

So, whether that is a 0 year or that is about 1, 2, 3, 4 years, we in the convention projects, we estimate that first cash outflows will be there and after that cash inflows will start coming up. So, we bifurcate the period into two, one is the cash outflow period that is the investment period and then is the cash inflow period when the funds start coming back to us.

So, means the cash outflow and inflow analysis. In the capital budgeting it was looking very simple that we are served on the platter the cash flows, and we have to simply discount them and make an analysis by way of calculating NPV or IRR, but that is not the case.

You have to estimate the cash flows and that is a very very complex job, means success or failure of any project or any investment proposal largely depends upon the true and correct estimation of the cash flows, both phase, outflows and cash inflows, both cash flows are important for the survival and growth of the firm.

So, when you talk about this, we will now, we can show this entire thing, entire structure something like this, the cash flow component when you talk about the cash flow. Before that I will discuss some theoretical concepts with you, some important concepts with you that role of financial manager now let us see, we will discuss this afterwards. But let us go for that. When you talk about the cash flows, what do we mean by that? So, you can show the cash flow process means when you talk about the cash flow components or the cash flow process.

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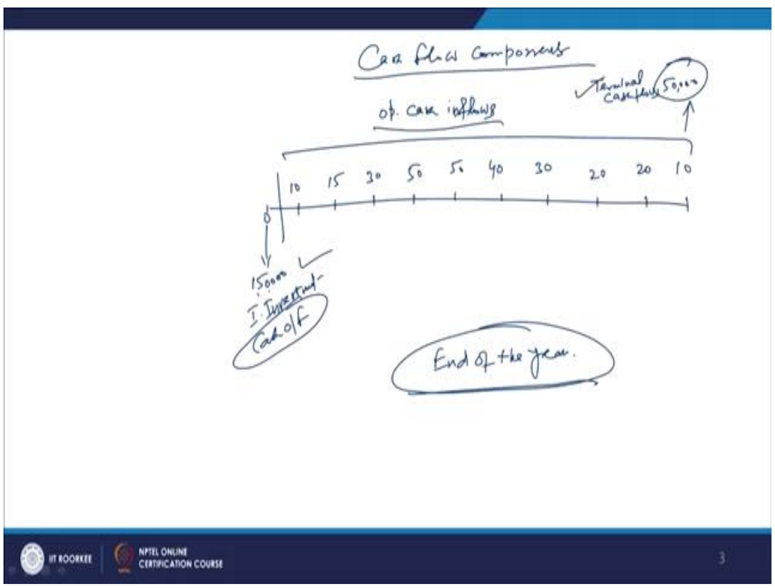

So, we can say it is the cash flow components these are cash flow components. So, we can calculate these cash flow components, we can try to find out what are the cash flow components. So, these cash flow components are like you can, you can have a line like this. So, you might have the different number of years here, we start with the 0 year, then we have the 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 we have the 10 number of years for which we are means foreseeable period of the project.

This is the foreseeable period of the project. And what we are doing here is that we are talking about is and when we are calculating these cash flows. We assume here that these cash flows will come to us at the end of the year. Cash flows will come to us at the end of the year, not at the beginning of the year whether it is cash outflow or the cash inflow at the end of any year how much cash flow has taken place.

So, in the first case you call it here as that this is the cash outflow in the this year and we call it as 150,000 and you can call it as the initial investment also this is the initial investment or you in a way you call it as the cash outflow, this is the cash outflow. So, at the end of the year, in the period 0, we have to shell 150,000 rupees or make investment of 150,000 rupees this is my cash outflow and then the in the subsequent 10 years, we will have the cash inflow.

So, you have to now calculate something in the first year for example, we get back is 10,000 then we get back is at the end of second year 15,000, then we get back here is 30,000, then we get back here is 50,000, then we get back here is again 50,000, then we get back here is 40,000, then we get back here is 30,000, then we get back here is 20,000 and then we get back here is again 20,000.

And lastly, we get back here is the 10,000 these are the cash inflows available to us and these cash inflows, when you talk about, we have to calculate on some basis and for calculating these, what we have to do is we have to be very careful and this will depend upon the idea and the total investment requirement and largely will be based upon something which is called as technical analysis.

This all will depend upon all these figures for the 10 years will depend upon on the largely upon the market and demand analysis. And you call this as whatever this we have calculated here is this you call it as the say operating cash, operating cash inflows. They are called as operating cash inflows. They are called us operating cash inflows. So, we have the certain figures in mind and these figures are in terms of this is a cash outflow, this is a cash, this is operating cash inflow, which we have calculated.

And one more thing here we have to take into account here is that is called as the last thing which will be here is in the last year that will be something called as the some amount is coming to us here is that will be called as a 50,000 and this amount will be for what? This will be for the terminal cash flows, this is called as terminal cash flow, this is called as terminal cash flow and this amount you can say is that is something like say 50,000.

So, the total structure of the cash flows can be shown like this. So, now number 1 is, it is at the end of the year these cash flows coming to us and we are saying that foreseeable life of our project we give shape to that project is how many 10 years. The total cash outflow will be in the current period that is in the 0 period, till the end of the 0 period, you will be means required to invest or shell 150,000 rupees and this amount will be called as the total cash outflow.

So, this is the, this project is called as the conventional project after that means when we start working on that, then the project will become operational when we commission the project means we will start manufacturing the product, selling it in the market and revenue will start coming back to us. So, operating cash flows at the end of the first year we are getting 10,000, 15,000, 30,000 and this way we are getting at the end of the 10th year the ten last is the very nominal amount and that is 10,000 rupees and after 10 years the project will be liquidated.

And at that the time you will get back something which is called as the terminal value means at that time also when you terminate the project you get some salvage value for the fixed assets and that too on the depreciable basis that whatever the fixed assets we have created, when they are now project is closed down, we sell them out in the market as a salvage value or maybe as a the leftover value or the leftover assets so some amount will be realized at that time also.

So, you have to take these into consideration, means three important things are to be taken into consideration, one is the cash outflow, then the operating cash inflows over the operational period of the project and then third is the terminal value of the project. So, these three important cash flows are to be taken into account while estimating the cash flows for the projects or capital investment proposals whether it is by the existing firms or by the new firms.

So, this is the idea about that how we can estimate the cash flows and how we can means proceed further bit. That must be say that this is the total investment requirement whether it is with us or not, are we ready to make this investment or not. And if we say yes, that these inflows will be available, so, summed up value of these will be calculated plus this value will be calculated and then means you will calculate the these cash flows.

And then we have seen in the capital budgeting discount them and including for the terminal value, and then we will compare them with the present value of cash outflows, and then we will finally take the decision whether to go for this investment or not. So, it means, in this whole case, the cash flow analysis, particularly this component and this component, and even this component is very, very important and a very complex job.

So, this is just initial discussion on the cash flow estimation, further more typical things and more interesting things with regard to the cash flow estimation, I will discuss with you in the next class and in the sub further more in the subsequent classes. Till then, thank you very much.