Working Capital Management

Dr. Anil K. Sharma
Department of Management Studies
Indian Institute of Technology-Roorkee

Lecture - 14
Assessing Working Capital Requirements – Problems 2 & 5

Welcome students. So let us do now this problem this is problem number 2 which is requiring the assessment of working capital on the basis of current assets, current liabilities and then the difference of these 2 will be the will be called as the net working capital which will be required by the firm coming from the long term sources of finance and this we have to calculate on the cash cost basis.

So when you calculate on the cash cost basis so we are clear that cash cost is the cost which is without the non-cash cost. Total cost of production includes the cash as well as the non-cash cost so like depreciation, amortization. These are some of the heads which are the say including the cost which are non-cash cost. So we will not talk about those cost here. We will take only the cash cost.

So before calculating the level of current assets and current liabilities, let us first work out what is the cash cost. So we will calculate first the cash cost and then we will do the other things. So in this case what is going to be the cash cost like say manufacturing, calculate the manufacturing cost on the basis of the cash cost.

(Refer Slide Time: 01:52)

Calculation of Manufacturing cost
(Cash cost basis)

1.	Material Consumed	=	Rs. 675000
2.	Wages	=	540,000
3.	Cash M. Exp	=	720,000
	Cash M. Cost	=	19,35000
4.	Add Ad. cost	=	180,000
5.	Add S.P. Exp.	=	90,000
	Cash Cost of Sales	=	2205000

So we are going to calculate something like say calculation of manufacturing cost on cash cost basis. Cash cost basis. So if you are going to calculate this on the cash cost basis, manufacturing cost on the basis of the cash cost basis so what is the material consumed. First component is the material consumed. How much is the material consumed? Material consumed is Rs.6,75,000 worth of the material has been used.

And then we talk about the wages, number 2 is wages. What is the total amount of wages paid? This total amount of the wages is 5,40,000 right and then we have the cash manufacturing expenses. Third component is the cash manufacturing expenses, cash manufacturing expenses. So what is the cash manufacturing expenses if we see we have seen the material is 6,75,000. Wages are 5,40,000 and manufacturing expenses, outstanding at the end of the year that is 60,000 Rs.

But it is written in the bracket these expenses are paid 1 month in arrears. It means this expense, manufacturing expenses, this figure 60,000 is not only not for the whole of the year but only for the 1 month. This is the one part which is outstanding that is only for a period of 1 month. It means for the whole of the year the figure will be something different and that figure will be how much? If we take this figure that figure will be Rs. 7,20,000.

This is the this figure is 7,20,000. So total, we will have to calculate how much is the cash cost now. The cash cost is, this is 7,20,000. So what is the total cash cost here, cash manufacturing cost I would say. The cash manufacturing cost is how much 6,75,000; 5,40,000; and 7,20,000. How much this works out as? Total will work out as 19,35,000. This is the cash manufacturing cost. But this is not the final cost.

We will have to calculate now the cost of sales. So into this you have to add something. Number 4 add administrative cost. So what is the administrative cost here? Administrative cost is given to us. Let us check the administrative cost given. The administrative cost here is total administrative cost paid as above. So total administrative cost is paid in the 1 month period but the total cost is given to us is 1,80,000.

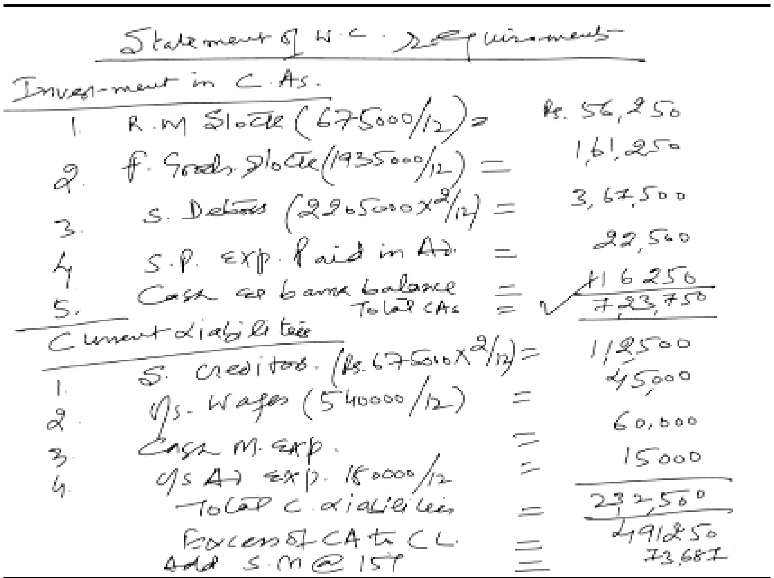
And then the second head of expense which is the indirect expense that is called as sales promotion expense paid quarterly in advance. So this is 90,000 Rs. This is the total sales promotion expense. So in this case we have to take the administrative cost. Administrative cost is how much here? Total administrative cost is 1,80,000. This is 1,80,000 and then add sales promotion expense. Sales promotion expense was how much?

We have seen it is total is 90,000 for the whole of the year. So this cost works out as how much now? This is the final cost of sales. You can say cash cost of sales, cash cost of sales. This is total is 2,205,000 is the total cost here. So this is the cost 22 lakhs and 5000 or in other way around you can say it is 2 millions and 205,000. So this is the total cash cost we have calculated. So here we have not taken here the any cost which you call it as the depreciation or anything say non-cash cost.

Here raw material is also a cash cost component. Then the wages are also the cash cost component. Cash manufacturing expense we have taken as cash. So we have calculated the cash manufacturing cost first which works out as 19,35,000. Then it is the administrative expenses we have added. Then we have added the sales promotion expenses. So this becomes the cash cost of sales. So this is the manufacturing cost and this is the say cost of sales, final cost which is on the cash basis.

Nothing on the sort of non-cash basis we have calculated here. Now we calculate now the say we prepare the statement of working capital requirement.

(Refer Slide Time: 06:51)



Statement of, statement of working capital requirement. Statement of working capital requirements we are going to prepare now this statement. So we will take here now the first investment in the current assets. Investment in current assets. This is the investment in current assets. So we have to take now the different current assets and if you take the different current assets, first current asset is raw material or the investment in the say raw material stock.

Investment in the raw material stocks. If you take the investment in the raw material stock so what is the your say raw material stock is how much. Let us check the raw material cost. The cost of raw material is how much? Raw material consumed, supplier's is for 2 months that is 6,75,000 and time period is how much? Raw material remains in the raw material stage is for how period of time? Stock of raw material and finished goods is the first line, read the first line.

Stock of raw material and finished goods are kept at 1 month's requirement. So it means raw material remains as raw material for the equal to the 1 month's requirement. So it means how much it is going to be. This is the 6,75,000 is the cost of raw material which is say requirement is material consumed supplier's credit is for 2 months. So material consumed is that is 6,75,000 and is only kept as a stock for 1 month.

So we will have to calculate it as a stock for 1 month. So it means 6,75,000 is for the whole of the year. So it means we have to take it as divided by 12. So we will be calculating for 1 month. So it means it is rupees how much? 56,250 Rs worth of raw materials investment will be required. This is the one part. Then second requirement is the finished goods. There is no work in process. It is written here that there is no work in progress. It is clearly given.

There will be no work in progress. It means we keep the raw material as raw material and that raw material is then finally converted into the finished goods. So it means finished goods stock, finished goods stock this is the finished goods stock. So finished goods stock is going to be how much? What is the cash cost. here we will take the cash cost which we have calculated. Cash manufacturing cost we have taken the calculated the cash manufacturing cost which is how much, how much was that cost, 19,35,000. This is the cash manufacturing cost.

This is the required for the finished goods and the stock of finished goods we are keeping it for how many time. Finished goods are kept for 1 month's requirements. It means we are keeping it for 1 month requirement. So total annual cost is 19,35,000. So we will be dividing it again by 12. So it means monthly requirement here will be monthly investment requirement here will be 19,35,000 and that will work out as 1,61,250.

1,61,250 is the requirement, investment requirement for the finished goods. Then we go for the third item that is the debtors, sundry debtors. Sundry debtors we are keeping the debtors as sundry debtors and sundry debtors will be of what that is of the at the this we will be taking into consideration the total sundry debtors will be including all the cost here but not the profit. So cost is administrative cost and then we will be taking here as the sales and promotion cost also.

That too on the cash cost basis. So if you take this cost how much is this? This is 2 million 205,000. 22 lakh and 5000. 22,05,000 we have calculated this cost already and it is for how much period of time? For 2 months. 2 by 12 if you calculate this cost works out as 2 by 12. How much is this? This is 3,67,500. This is the investment in the debtors. And then next item given to us is that is the we have taken the material.

We have taken now the manufacturing expenses means the finished goods stage there is no work in process stage. So raw material stage, finished goods stage, sundry debtor stage because it is written here that total time period is given sales at the 2 month's credit. That is total sales we have made this much. So material consumed we have already taken and finished goods we have already taken.

So now one thing which was required here is cash to be held to the extent of 50% of the current liabilities. So we will be able to calculate the volume of the cash once we calculate the amount of the current liabilities and after we calculate the net working capital we will add 15% of that. So in this case now we will have to calculate the something like say 1 item more. One more current asset here is sales promotion expenses paid quarterly and in advance.

Sales promotion expenses paid quarterly and in advance. So it means we will have to go for here before we talk about the cash we will write here sales promotion expenses paid in advance. It means this is a prepaid expense and prepaid expenses are also assets. So once you have to make the pre-payments so it means you will have to make this investment also. Total is 90,000 given in the problem.

So we are taking it for the 1 quarter and that works out as how much 22,500 and we will go for the fifth requirement that is the cash and bank balance. Cash and bank balance. That we will calculate after we calculate the current liabilities level. Now we go to the next stage and that stage is the current liabilities. Current liabilities how much funds are going to be available from the current liabilities.

So current liabilities are first, we will see the number one is the sundry creditors. Sundry creditors. Sundry creditors you can see here that material consumed supplier's credit is for 2 months. So that is for a period of 2 months. So how much is the total material we are using? We are using the total material of say Rs. 6,75,000 and for a period of 2 months we are getting a credit.

So it means this much of the funds will come from this much of the funds will come from how much funds will come from 112,000 will come from 112,500 this will come from the sundry creditors and the next item is the say outstanding wages. Wages we are also paying after the lag of some time so outstanding wages will be how much? Outstanding wages will be something like here how much is the outstanding wages? Total wages paid at the beginning of the next month.

It means at least for a period of how much 1 month we are getting the credit of the wages. Normally we get the credit of wages for a period of 1 month. So it means this total amount of the wages is how much? 540,000 and we are getting the credit for 1 month so it means this is for 1 month we need not to worry about paying for the wages. So this amount works out as how much 45,000. So this is the amount, 45,000.

This much credit is available to us and then we will be talking about the manufacturing cost. here next thing is the if you look at the problem here manufacturing expenses outstanding at the end of the year is 60,000 and these are paid 1 month in arrears. So it means cash manufacturing expenses. These are the manufacturing expenses. So cash manufacturing expenses which we can pay in arrears. Cash manufacturing expenses these expenses we can pay in 1 month in arrears.

So it means their outstanding 60,000 is so total we have seen is that is the total amount was how much total amount was say 720,000. So we are taking here as 60,000 which is outstanding for a period of 1 month and then what else is there? We have to see now the something like anything which we can pay total administrative expense is paid as above, 1 month in arrears. So administrative expenses we also pay in arrears.

It means total expenses are how much 180,000. So out of 180,000 1 month is paid in arrears. So it means administrative expenses you can say outstanding, administrative expenses they will be paid in arrears. Total is how much? 180,000 and divided by 12. So we are getting here 15,000.

This much of the credit will come for a period of 1 month from the outstanding administrative expenses which we can delay the payment.

Then we have how much we have taken the 4 items here. Current liabilities 112,000 is the sundry creditors 112,500 is the sundry creditors. Wage credit is available for the amount of 45,000. Cash manufacturing cost is available as 60,000 and then we have the administrative expenses which we also can pay at the arrears of 1 month. So that is 15,000. How much this works out if you calculate this.

Total current liabilities, you will say here as the total, total current liabilities. Total current liabilities are how much? Here we have to see, this will be 0. Then it is 0. Then it is how much? This is 5. And then we will have to take this is 232,500. 232,500 is the total amount of the current liabilities. Now we have got the figure of current liabilities 232,500. So it means now we can fill this column that is the cash and bank balance required.

Cash and bank balance required will be half of this. 50% of the current liabilities. So it means it is 116,250. 116,250. So the total amount of the current assets is going to be how much? If you take the total amount of the current assets now, we write here total current assets. Total current assets will be how much. That amount will be if you total these figures that is 56,250, 1,61,250 then 3,67,250; 22,500; 116,250. This amount works as how much? 7,23,750 Rs.

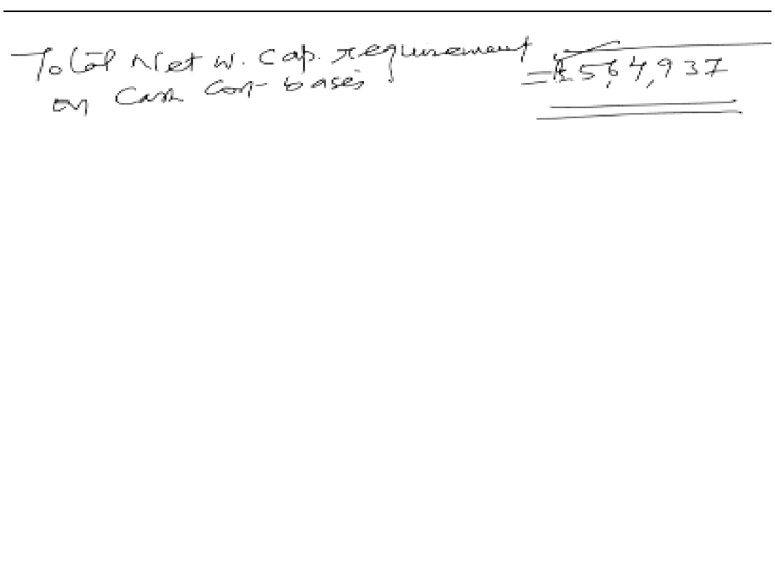
This is the total current assets. This is the balance of the total current assets. These are the total current liabilities. Now let us see the say excess of current assets over current liabilities. Excess of current assets to current liabilities. This is going to be the excess. It means this much of the level of the investment we require. 723,750 worth of rupees of the current assets we will have to build up over a period of 1 year.

And this much of the funds will be available from the current liabilities over a period of time. So it means this is how much? That is 232,500 will be available from the current liabilities. So what is the excess of current asset to current liabilities or current asset over current liabilities that amount will work out as 491,250. This is the total excess and in this excess in this excess amount.

So this is the total excess and against this excess it is written here something like this if you look at a safety margin of 15% of net working capital will be maintained. So it means a safety margin of this is actually a net working capital current excess of current asset to current liabilities is net working capital. So it means we have to maintain a margin of 15%. So it means add here add safety margin, safety margin at the rate of 15%.

This will be how much if you take the 15% of this, this will be something like 73,687. So if you take this and then we will move to next sheet so here the total working capital requirement.

(Refer Slide Time: 20:42)



Total net working capital requirement on cash cost basis, cash cost basis we have worked out is that is 564,937. This is the total requirement. 564,937 is the total requirement that is the total net working capital requirement on the cash cost basis we have worked out worked out is this. so in this if you look at the whole process, investment first we have to calculate the say cash cost. Cash cost we have manufacturing cost we calculated 19,35,000.

Then we calculated the total cash cost, cost of sales on the cash basis which was 2,205,000 or 22,05,000. These 2 costs we worked out and then we assessed the level of the current assets requirement and while assessing the level of the current asset how much current assets we have to build over a period of time in a period of 1 year. So we saw that this much is required in the raw material. This much is required in the at the finished goods stage.

This much is required to invest it at the sundry debtor stage. This much is required to support the sale promotion expenses which have to be paid in advance. These are the prepaid expenses. Then we have the cash and bank balances. All the times we have to keep the cash and bank balance because minimum asset as a cash or the bank balance has to be maintained which was 50% of the current liabilities figure here.

And then we saw that for this funding of the total investment in the current asset that is 7,23,750 this is the total size of the current assets we are going to have for the whole of the year. So for this 112,500 will come from the sundry creditors. It means suppliers are going to give us this much of the credit. Wages we are going to pay at the lag of 1 month. So it means 45,000 we need not to worry. This will be all the times available to us.

Cash manufacturing cost is going to be 60,000 so it means this is the this was the manufacturing expenses, 60,000 we are paying in the arrear of 1 month. Similarly, administrative expenses are also being paid at the arrear of say 1 month and the amount was 15,000. So in total the total funds available to us from the spontaneous finance was 2,32,500 Rs. This much was available. So it means when we calculated the excess of current, this is not the net working capital.

So we are calling it as a current, excess of current asset and current liabilities. This is net working capital but at this stage we have to add something more. That is why I am not calling it as the net working capital I am calling it as the excess of current asset to current liability. This is 491,250 is the excess of the current assets over current liabilities and in this we have to add the safety margin, at the rate of 15% so that works out as 73,687.

So when you are adding this safety margin also into the excess of current asset over current liabilities so investment requirement is further going up and then total investment net working capital requirement becomes on the cash cost basis 564,937. So what is the difference between this problem and the previous problem? In the previous problem you have seen that we have only calculated the this part that is the current assets part.

We have not got any funds from the current liabilities. So it means the total investment up to this level has to come from the long term sources. If there is no spontaneous or short term finance available then total investment has to come from the long term sources but in this problem we have seen that we require this much total current assets and this much of the funds are coming from the current liabilities.

So it means some part is coming from spontaneous sources of the finance. Then we will see that now we have got this much further requirement of current assets which are more than the current liabilities so we will fund it from the short term sources first that is borrowing from the bank or financial institutions or factors or maybe other sources and still if there is a requirement then that requirement will be fulfilled from the long term sources.

So the total requirement we have worked out here is that is the 564,937 Rs of the working capital is required. This is the total working capital requirement assessment of the total working capital requirement for this company. Now after this problem we will move to the next problem and out of these 5 problems I am moving to the last problem now, problem number 5 and in the problem number 5 we will have something more say additional information.

(Refer Slide Time: 26:00)

- **PROBLEM 5:**

On 1st January, 2018, The Board of Directors of Dowell Max Ltd. wishes to know the amount of working capital that will be required to meet the program of activity they have planned for the year. The following information are available:

(i) Issued and paid up capital \$2,00,000.
(ii) 5% debentures (secured on assets) \$50,000.
(iii) Fixed assets valued at \$1,25,000 on 31'st December, 2017.
(iv) Production during 2017 was 60,000 units. It is planned that the level of activity should be maintained during 2018.
(v) The ratios of cost to selling prices are: raw material 60%, labor 10% and overheads 20%.
(vi) Raw material are expected to remain in store for an average period of two months before these are issued for production.
(vii) Each unit of production is expected to be in process for one month.
(viii) Finished goods will stay in warehouse for about three months.
(ix) Creditors allow credit for two months from the date of delivery of raw materials.
(x) Credit allowed to debtors is three months from the date of dispatch.

In that problem what you have to do is you will have to you have to say prepare number one is the working capital statement like this what we did in the problem number 2. So you will have to assess the current assets requirement and the current liabilities, funds available from the current liabilities and then you have to see that how much net working capital is required. Apart from that you will have to calculate the net profit also and prepare the balance sheet also.

So it is a comprehensive problem, interesting but comprehensive problem where you have to do 3 things. First thing you have to do is you have to assess the working capital requirement by assessing the requirement of current assets and current liabilities and then you have to go to prepare the profit and loss account on the basis of the information available and then you have to prepare the balance sheet.

So 3 things are required to be done in the problem number 5 and remaining 2 problems that is problem number 3 and 4 because I am doing first, second, and fifth; problem number 3 and 4 you can try at your level yourself and if you have any problem or any doubt you can raise your queries during when the course will run and then we can discuss these problems. You do it or sometime you can send these problems after solving it through mail to me.

And then I will see to it that if there is any problem or if there is any issue then we will discuss jointly mutually on mail or maybe while addressing your queries but I would like that you try to do these 2 problems yourself and assess the working capital requirement net working capital requirements of these companies which are given in the problem number 3 and 4. Now let us talk about the problem number 5.

This is the last problem for this particular topic for us that how to assess the working capital requirements of different companies. So this will be the last problem and remaining problems you can find in the books, number of books are there. I will tell you in the next class the number of books you can refer to and but the basic book which you have to follow for this subject is that is the Working Capital Management by Hrishikes Bhattacharya.

That is a PHI Publication and that is Working Capital Management by Hrishikes Bhattacharya. That is little complex book but if you read that book you will be more clear about the many aspects of the working capital management. Apart from the Hrishikes Bhattacharya's book there are many books say all the books on financial management.

One say section of any book on financial management whether it is written by Prasanna Chandra, I.M. Pandey, or J. C. Van Horne one section is say devoted to the working capital management. So you can refer to any of the financial management books also but that is the as a reference books. Basic text book I would request you is that you should follow the Hrishikes Bhattacharya working capital management by Hrishikes Bhattacharya that is a PHI Prentice Hall of India Publication.

But these problems will not be available in that book. These problems are taken from different books and you will be finding these problems in the different books like any book on the financial management. So let us first try to understand this problem, problem number 5 and then we will try to solve this. See here it is written that on 1st January 2018 right board of directors of Dwell Max Limited wishes to know the amount of working capital that will be required to meet the program of activity they have planned for the year.

The following information are available. The following information are available. Issued and paid up capital. So it means just I had told you that you will have to prevent the balance sheet also. You do not require this paid up issued and paid up capital information anywhere in the assessment of working capital requirement statement but you require that in the balance sheet. Then you have got the debentures, 5% debentures secured on assets and the amount is 50,000.

And then you call it whether it is in the rupees or dollars. Then you have the fixed assets valued at 125,000 on 31st December 2017. Then we have production during the year 2017 was 60,000 units. It is planned that level of activity should be maintained during the same level of activity should be planned be maintained during the year 2018. The ratios of the cost to selling prices are raw material 60%, labor is 10%, overheads are 20%.

Raw materials are expected to remain in store for an average period of 2 months before these are issued for production. Each unit of production is expected to be in process for 1 month. It means work in process is for 1 month. Finished goods will stay in warehouse for about 3 months. Finished goods will stay in warehouse for about 3 months. It means finished goods conversion period is 3 months.

Creditors allow credit for 2 months from the date of delivery of raw material so it means suppliers credit is available for 2 months. Credit allowed by this firm to their own buyers, debtors is 3 months from the date of dispatch.

(Refer Slide Time: 31:20)

(xi) Selling price per unit is Rs 5.00 only.

(xii) Production and sales cycle is continuous and regular.

Required:

(a) Preparation of working capital forecast statement.

(b) An estimated Profit and Loss Account and Balance at the end of the year.

And selling price is also given to us that is 5 Rs or dollars we call it as and production and sales cycle is continuous and regular. Production and sales cycle is regular. It means all through the year the production is going on.

So it means preparation of working capital what is required to be done here. Preparation of the working capital forecast statement and second requirement is then an estimated profit and loss account and balance sheet at the end of the year also have to be prepared. So we will be preparing all the 3 statement that is the working capital forecast statement, profit and loss account, and balance sheet.

And then we will try to see that how this assessment of working capital requirement helps us to prepare the profit and loss account and balance sheet and that we will do in the next class. Thank you very much.