

# CH0401 Process Engineering Economics

## Lecture 2b

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- 1 Capital requirements for process plants
- 2 Balance Sheets**
- 3 Earnings, process and returns (Income statements)
- 4 Economic production, break even analysis charts
- 5 Cost accounting - pre construction cost estimation - allocation of cost.

## Conceptual Basis

The conceptual basis for a balance is explained with the following example

**Example** I want to purchase a bike costing ₹80,000, to do so, I have to borrow. A bank agrees to finance me if I can invest ₹30,000 on my own. Now let us follow the sequence of events when I approach the bank with the proposal. Granting my ability to repay loan, the banker or lender will ask two specific questions:

1. What are the things of value you own?
2. How much do you owe, and to whom?

In other words, the banker would like to know what I am worth in material terms. My replies to the questions could be tabulated as follows:

# Process Engineering Economics – Balance Sheet

Things of value owned by me		Amount owed by me	
	₹		₹
Balance with bank	35,000	Personal loan from friend	10,000
Fixed Deposits	15,000		
Other personal belongings	50,000		
Total	<b>1,00,000</b>	Total	<b>10,000</b>

The above table implies I own ₹1,00,000 worth of things of value, ₹35,000 of this could be withdrawn at any time in cash. We say I have ₹35,000 in liquid form. Another ₹15,000 is in monetary investment and the remaining ₹50,000 is in non- monetary property.

# Process Engineering Economics – Balance Sheet

Further, I owe ₹10,000 to a friend of mine. In other words, he has got a claim against the things of value owned by me to the extent of ₹10,000. In brief, we can say I am worth ₹1,00,000, claim against my worth is ₹10,000 and hence my networth is ₹90,000. This implies ₹90,000 is my own claim against the things of value owned by me or my net worth. Now I can present my financial position in the following form:

## Financial Position Statement – I

Things of value owned		Claims against things of value	
	₹		₹
Balance with the bank	35,000	Personal loan from friend	10,000
Fixed Deposits	15,000	Own claim or Networth	90,000
Other personal belongings	50,000		
Total	<u>1,00,000</u>	Total	<u>1,00,000</u>

# Process Engineering Economics – Balance Sheet

Now, Bank grants me the loan of ₹50,000 and I buy the bike for ₹80,000.

After purchase of the bike, the financial position statement will change as follows,

## Financial Position Statement – II

Things of value owned		Claims against things of value	
	₹		₹
Balance with the bank	5,000	Personal loan from friend	10,000
Fixed Deposits	15,000	Mortgage loan from bank	50,000
Other personal belongings	50,000	Own claim or Networth	90,000
Bike	80,000		
Total	1,50,000	Total	1,50,000

Now, as a result of this transaction my worth has increased from ₹1,00,000 to ₹1,50,000.

However, since there is also an equal claim against my worth in the form of mortgage loan from the bank, my networth remains the same.

Things of monetary value possessed by an entity (business firm) are referred to as *assets*.

Accountants use the term *assets* to describe *the things of value measurable in monetary terms*.

The amounts owned by the entity, less liabilities or outsider's claims, is termed as *networth*. Since the networth represents the claims of owners in case of an entity, it is referred to as owners equity. Now, we can understand that the financial position statement is a summary of the assets, liabilities and networth as of a specific point of time.

# Process Engineering Economics – Balance Sheet

A comparison of the two financial position statements before and after purchase of the bike will help to clarify some of the ideas better.

## Comparative Financial Position

	Assets			Liabilities	
	Before	After		Before	After
	I	II		I	II
	Rs.	Rs.		Rs.	Rs.
Balance with the bank	35,000	5,000	Personal loan from friend	10,000	10,000
Fixed Deposits	15,000	15,000	Mortgage loan from bank	--	50,000
Other personal belongings	50,000	50,000	Networth	90,000	90,000
Bike	--	80,000	--	--	--
<b>Total</b>	<b>1,00,000</b>	<b>1,50,000</b>	<b>Total</b>	<b>1,00,000</b>	<b>1,50,000</b>



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