

## Capital Expenditure Decisions / Capital Budgeting

Capital Expenditure decisions or Capital Budgeting may be defined as the decision-making process by which firms evaluate the purchase of major fixed assets including buildings, machinery, equipment, etc. which are not meant for sale. It deals with major investment proposals which are essentially long-term projects, the benefits of which are expected to be received over a period of time longer than one year. Apart from the long-term investment proposals, capital budgeting is also concerned with the allocation of the firm's scarce financial resources among the available market opportunities with some degree of risk and uncertainty.

### Determination of cash flows

One of the most important tasks in capital budgeting is estimating future cash flows for a project. The costs are denoted as 'cash outflows', whereas the benefits are denoted as 'cash inflows'.

Cash flows associated with an investment proposal may be classified into three components:

- i) Initial Investment or Initial Cash Outflow.
- ii) Cash Inflow
- iii) Terminal Cash Inflow.

(i) Initial Investment / Initial Cash Outflow - It represents the sum of all cash outflows at zero time period. Since the investment cost occurs at the beginning of the project, it is relatively easy to identify the initial cash outflows. It shows the cash spent to acquire the assets along with



installation charges. While computing initial cash outflow, another important item that needs some special attention is 'Net Working Capital' (i.e. current assets - current liabilities). In Capital budgeting, almost every investment proposal requires an additional investment in various components of working capital i.e. in the form of additional inventories, additional debtors/receivables, additional cash balance, etc.

### Determination of Initial Cash Outflow for a Single Project

	<u>₹</u>
Initial cost of new project/proposal/asset	xx
(+) Installation charges	xx
(±) Working Capital requirements	<u>xx</u>
Initial Cash Outflow (CO)	<u><u>xxx</u></u>

### Determination of Initial Cash Outflow for Replacement Situation & Mutually Exclusive Proposals

	<u>₹</u>
Initial cost of new project/asset	xx
(+) Installation charges	xx
(±) Working Capital requirements	xx
(+) Additional capital expenditure incurred	xx
(-) Sale proceeds of old asset	xx
(+) Tax liability on capital profit on sale of old asset, if any [Tax rate × (Sale - WDV)]	xx
(-) Tax savings/benefit on capital loss on sale of old asset, if any [Tax rate × (WDV or Book Value - Sale Proceeds)]	xx
Initial Cash Outflow (CO)	<u><u>xxx</u></u>

(ii) Cash Inflow - A capital investment is expected to generate annual cash inflows from operations after the initial cash outflow has been made.

Cash inflows should always be estimated on an after-tax basis i.e.  $\text{cash inflow} \times (1 - \text{tax rate})$ .

These cash inflows may be same every year throughout the life of the project or may vary from one year to another.



**For Single Project / Proposal**  
**Determination of Cash Inflow (CI)**

	₹
1. Sales Revenue	**
2. (-) Variable Cost	(-) **
3. Contribution	**
4. (-) Operating Fixed Cost [excluding non-cash expenses like depreciation, loss on sale of fixed assets etc.]	(-) **
5. Earnings/Profits Before Depreciation and Tax (EBDT/PBDT)	**
6. (-) Depreciation	(-) **
7. Earnings/Profits Before Tax (EBT/PBT)	**
8. (-) Tax	(-) **
9. Earnings/Profits After Tax (EAT/PAT)	**
10. (+) Non-cash expenses like depreciation, loss on sale of fixed assets etc. (Added back)	(+ ) **
11. Cash Inflow After Tax (CIAT)	**

**For Replacement Situation and Mutually Exclusive Proposals**  
**Determination of Cash Inflow (CI)**

	₹
1. Additional/Incremental Sales Revenue	**
2. (-) Additional/Incremental Operating Cost (excluding depreciation)	(-) **
3. Additional/Incremental Profit or Earnings Before Depreciation and Tax (EBDT)	**
4. (-) Additional/Incremental Depreciation	(-) **
5. Additional/Incremental EBT	**
6. (-) Tax	(-) **
7. Additional/Incremental EAT	**
8. (+) Additional/Incremental Depreciation (Added back)	(+ ) **
9. Additional/Incremental CIAT	**



(iii) Terminal Cash Inflow - In the last year or final year in respect of the life of a project, additional cash inflows may occur in the form of 'salvage value' or ~~scrap~~ 'scrap value' of the asset, recovery of working capital, etc. These cash inflows should be added with Cash Inflow After Tax (CIAT) in the final year and are popularly known as 'Terminal Cash Inflows'.

Determination of Terminal Cash Inflow at the end of the life of the project

	<u>₹</u>
Recovery of working capital or additional working capital	xx
(+ ) Salvage value or Scrap value of the asset, if any	<u>xx</u>
Terminal Cash Inflow	<u><u>xxx</u></u>



### Illustration 2.

The XYZ Company Ltd. has under consideration the following capital budgeting proposal for which relevant figures are as follows :

Cost of the machine	₹ 15,00,000
Cost of installation	₹ 80,000
Economic life of the machine	6 years
Scrap value	₹ 50,000
Profit before depreciation and tax	₹ 3,00,000
Tax rate	35%

Calculate (i) Initial Cash Outflow ; (ii) Annual Cash Inflow upto 5th year ; (iii) Terminal Cash Inflow in the 6th year ; (iv) Annual Cash Inflow in the 6th Year.

### Solution :

#### (i) Determination of Initial Cash Outflow (CO)

	₹
1. Initial cost of the new machine	15,00,000
2. (+) Installation charges	80,000
	15,80,000

#### (ii) Determination of Annual Cash Inflow (CI)

	₹
1. Profit before depreciation and taxes	3,00,000
2. Less : Depreciation $\left[ \frac{\text{₹ } 15,00,000 + \text{₹ } 80,000 - \text{₹ } 50,000}{6} \right]$	2,55,000
3. Profit Before Tax (PBT/EBT)	45,000
4. Less : Tax @ 35%	15,750
5. Profit After Tax (PAT/EAT)	29,250
6. Add : Depreciation	2,55,000
7. Annual Cash Inflow After Tax [CIAT] [upto 5th year]	2,84,250

(iii) Terminal Cash Inflow in the 6th year (i.e., at the end of the life of the machine) will be ₹ 50,000, in the form of scrap value of the machine.

(iv) Annual Cash Inflow in the 6th year will be ₹ 2,84,250 + ₹ 50,000 (scrap realisation) i.e., ₹ 3,34,250.



 **Illustration 4.**

HP Ltd. is considering to enhance its production capacity. The following two mutually exclusive proposals are being considered :

	Proposal A	Proposal B
	₹	₹
Plant	3,00,000	4,00,000
Building	50,000	1,00,000
Installation	10,000	15,000
Working capital required	50,000	65,000
Annual earnings (before depreciation)	80,000	1,00,000
Sales promotion expenses	—	5,000
Scrap value of Plant	10,000	20,000

Life of the project is 10 years. Sales promotion expenses have not been considered to find out the annual earnings (given above). Depreciation is provided on straight line system. The Income Tax rate is 35%. Calculate (a) Cash Outflow ; (b) Annual Cash Inflow After Tax ; and (c) Terminal Cash Inflow.



**Solution :**

(a) **Determination of Cash Outflow (CO)**

Particulars	Proposal A ₹	Proposal B ₹
Cost of Plant	3,00,000	4,00,000
Installation charges	10,000	15,000
Cost of Building	50,000	1,00,000
Requirement of Working Capital	50,000	65,000
	<b>4,10,000</b>	<b>5,80,000</b>

(b) **Determination of Annual Cash Inflow (CI)**

Particulars	Proposal A ₹	Proposal B ₹
Annual Earnings (before Dep.)	80,000	1,00,000
Less : Sales promotional expenses	—	(-) 5,000
<b>EBDT (Earnings before depreciation and tax)</b>	<b>80,000</b>	<b>95,000</b>
Less : Depreciation on Plant :		
— Proposal A $\left[ \frac{3,00,000 + 10,000 - 10,000}{10} \right]$	(-) 30,000	—
— Proposal B $\left[ \frac{4,00,000 + 15,000 - 20,000}{10} \right]$	—	(-) 39,500
Depreciation on Building :		
— Proposal A $\left[ \frac{50,000}{10} \right]$	(-) 5,000	—
— Proposal B $\left[ \frac{1,00,000}{10} \right]$	—	(-) 10,000
<b>EBT</b>	<b>45,000</b>	<b>45,500</b>
Less : Tax @ 35%	15,750	15,925
<b>EAT</b>	<b>29,250</b>	<b>29,575</b>
Added back : Depreciation on Plant	30,000	39,500
Depreciation on Building	5,000	10,000
<b>Annual Cash Inflow After Tax (CIAT)</b>	<b>64,250</b>	<b>79,075</b>



(c) Determination of Terminal Cash Inflow (at the end of the life of the project)

Particulars	Proposal A	Proposal B
	₹	₹
Recovery of Working Capital	50,000	65,000
Salvage Value of Plant	10,000	20,000
	60,000	85,000