

5052 Chapter - 8, 07

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|-------------------------|--|
|                         | Department of Business Administration<br>Course Outline<br>Managerial Accounting |
| <b>Relevant Costing</b> |  |

(Go through the reference books for details)

❖ **Relevant & Irrelevant Cost** (Managerial Accounting, Garrison, 10<sup>th</sup> edition, p. 586)

Relevant costs are considerable for making decision. **A relevant cost is a cost that differs between alternatives.** Only those costs that differ in total between alternatives are relevant in a decision. If a cost will be the same regardless to the alternative selected, then the decision has no effect on the cost it can be ignored. For example, if you are trying to decide whether to go to a movie or to rent a video CD for the evening, the rent on your apartment is irrelevant. On the other hand, the cost of the movie ticket and the cost of renting the video CD would be relevant in the decision.

Two main characteristics of **relevant** costs are:

1. Cost must be related to **future**
2. Cost must **differ** among alternatives

Two broad categories of costs are never relevant in any decision. These **irrelevant** costs are:

1. **Sunk cost** is a cost that has already been incurred and cannot be avoided regardless of what a manager decides to do.
2. A future cost that **does not differ** between alternatives is never a relevant cost.

To identify the relevant cost, two steps process can be followed:

1. Eliminate costs and benefits that do not differ between alternatives. These irrelevant costs consist of (a) sunk costs and (b) future costs that do not differ between alternatives.
2. Use the remaining costs and benefits that do differ between alternatives in making the decision. The costs that remain are the differential cost or avoidable costs.

Costs that are relevant in one decision situation **may not be relevant** in another context. Thus, in each decision situation, the manager must examine the data at hand and isolate (separate) the relevant costs

❖ **Avoidable & Unavoidable Costs** (Managerial Accounting, Garrison, 10<sup>th</sup> edition, p. 586)

**An avoidable cost is a cost that can be eliminated** in whole or in part by choosing one alternative over another. By choosing the alternative of going to the movie, the cost of renting the video CD can be avoided. By choosing the alternative of renting the video CD, the cost the movie ticket can be avoided. Therefore, the cost of the movie ticket and the cost of renting the video CD are both avoidable costs. On the other hand, the rent on the apartment is not avoidable cost of either alternative. **Avoidable costs are relevant costs. Unavoidable costs are irrelevant costs.**

❖ **Differential Cost and Revenue** (Managerial Accounting, Garrison, 10<sup>th</sup> edition, p. 55)

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Decisions involve choosing between alternatives. In business decisions, each alternative will have certain costs and benefits that must be compared to the costs and benefits of the other available alternatives. A difference in costs between any two alternatives is known as a differential cost. A difference in revenues between any two alternatives is known as differential revenue. A differential cost is also known as an incremental cost, although technically and incremental cost should refer only to an increase in cost from one alternative to another, decreases in cost should be referred to as decremental costs. Differential costs refer both cost increases and cost decreases between alternatives.

❖ **Sunk Cost** (Managerial Accounting, Garrison, 10<sup>th</sup> edition, p. 57)

A sunk cost is a cost that has already been incurred and that cannot be changed by any decision made now or in the future. Since sunk costs cannot be changed by any decision, they are not differential costs. Therefore, they can and should be ignored when making a decision. For example, a company paid Tk. 50000 before 5 years for purchase a machine.

❖ **Opportunity Costs** (Managerial Accounting, Garrison, 10<sup>th</sup> edition, p. 57)

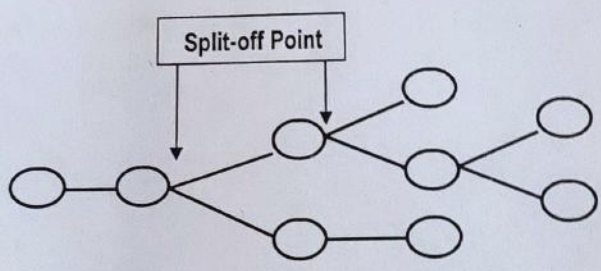
Opportunity cost is the potential benefit that is given up when one alternative is selected over another. Opportunity cost is not usually entered in the accounting records of an organization, but it is a cost that must be considered in making decision by management. For example, Tk. 100,000 can be invested @ 10% interest in bond or deposited into bank @ 7% interest, if the amount is invested in bond then the bank interest (100,000X 7%) Tk. 7000 will be the opportunity cost of bond interest.

❖ **Non-routine Decision** (Cost Accounting, Jawahar Lal, 2<sup>nd</sup> edition, p. 1000)

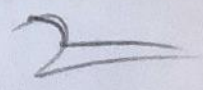
1. The make or buy decision
2. Special order
3. Sell or process further
4. Add or Drop Products
5. Operate or Temporary Shutdown
6. Replacement or Retain Plant & Equipment
7. Introduce shifting
8. Buy or lease etc.

❖ **Split-off Point**

**Split-off point** is the point in the manufacturing process where some or all of the joint products can be recognized as individual products. Two or more products that are produced from a common input are known as **Joint Product**.



❖ **Problem 1** (Dropping or Retaining a Segment)





Alpha Company has three products in the product line. Most recent costs and revenue data are as follows:

|                                   | Product A<br>Taka | Product B<br>Taka | Product C<br>Taka | Total<br>Taka |
|-----------------------------------|-------------------|-------------------|-------------------|---------------|
| Sales                             | 520,000           | 350,000           | 430,000           | 1,300,000     |
| Variable Costs                    | 290,000           | 240,000           | 252,000           | 782,000       |
| Manufacturing Overhead            | 132,000           | 96,000            | 108,000           | 336,000       |
| COGS                              | 422,000           | 336,000           | 360,000           | 1,118,000     |
| Gross Margin                      | 98,000            | 14,000            | 70,000            | 182,000       |
| Administrative Expenses           | 30,000            | 25,000            | 27,000            | 82,000        |
| Selling and Distribution Expenses | 25,000            | 15,000            | 18,000            | 58,000        |
|                                   | 55,000            | 40,000            | 45,000            | 140,000       |
| Net Income (Loss)                 | 43,000            | (26,000)          | 25,000            | 42,000        |

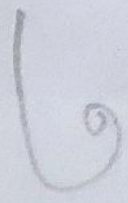
As Product B is facing loss, management wants to drop this product. If it is been dropped then fixed manufacturing overhead will reduce by Tk. 5,000 and this unused place may be let out by Tk. 1000 per month. 40% of manufacturing overhead, all of the administrative expenses and 80% of selling expenses are fixed. Should the Product B be dropped?

❖ **Problem 2 (Discontinuance of a Product)**

The costs and revenue data of three products, A, B & C of a company are given below:

|                               | Product     |        |        |
|-------------------------------|-------------|--------|--------|
|                               | A           | B      | C      |
| Selling Price Per Unit        | Tk. 64      | Tk. 60 | Tk. 52 |
| Variable Cost Per Unit        | 40          | 40     | 36     |
| Contribution Margin per unit  | 24          | 20     | 16     |
| No. of units produced         | 10,000      | 5,000  | 8,000  |
| Total fixed costs the company | Tk. 122,000 |        |        |

Production arrangements are such that if one product is given up the production of the others can be raised by 50%. The directors propose that Product C should be given up because the contribution from that product is the lowest. Present suitable analysis of the data indicating whether the proposal should be accepted.





❖ **Problem 3** (Introduce new product)

Millon Company produces Paint and Varnish. The costs and revenue data of these products in 200X are as follows:

|                                    | Paint  | Varnish |
|------------------------------------|--------|---------|
| Selling Price per kg               | Tk. 40 | Tk. 60  |
| Direct Material                    | 10     | 14      |
| Direct Labor                       | 8      | 16      |
| Manufacturing Overhead (50% Fixed) | 8      | 16      |

In 200X the company produced and sold Paint 4000 kg and Varnish 6000 kg. Manufacturing overhead is charged on the basis of normal production, Paint 5000 kg and Varnish 7500 kg. Administrative selling expenses are Tk. 36,000 and 22,000 respectively.

Company decides to expand its product line by introducing new product Ink. Expected costs and revenue data of the new product are as follows:

|                                    |        |
|------------------------------------|--------|
| Selling Price per kg               | Tk. 40 |
| Direct Material                    | 16     |
| Direct Labor                       | 12     |
| Manufacturing Overhead (50% Fixed) | 12     |
| Total costs                        | Tk. 40 |

If the Ink is produced, fixed manufacturing overhead will increase by Tk. 2000 and addition selling expenses Tk. 3000. The market demand of ink is 3000 kg. If the present situation remain unchanged, whether the production of ink is profitable (Show computation).

❖ **Problem 4** (Make or Buy Decision)

Shima Tools Manufacturers wants to purchase a part for the equipment that it produces. Because the market price of the part is lower then production by Tk. 8. The annual demand of this part is 5,000 units and production costs per unit are as follows:

|  |        |
|--|--------|
| Direct Materials                                 | Tk. 21 |
| Direct Labor                                     | 12     |
| Manufacturing Overhead (125% of Direct Material) | 15     |
| Total costs                                      | Tk. 48 |

Company may collect this part from an outside supplier by Tk. 40 per unit. If the company produce this part, fixed manufacturing overhead Tk. 4000. If purchase from outside, carriage inward Tk. 500, warehousing cost Tk. 1200, labor compensation Tk. 1000. 40% of manufacturing overhead is variable.

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❖ **Problem 5 (Special Order)**

Fahim Ltd. Produce and sold 10,000 units per annum @ Tk. 50 per unit. Costs of production per unit are as follows:

|                                 | Tk. 16 |
|---------------------------------|--------|
| Direct Material                 | 14     |
| Direct Labor                    | 6      |
| Fixed Manufacturing Overhead    | 4      |
| Variable Manufacturing Overhead | 40     |
| <b>Total</b>                    |        |

Annual administrative and selling expenses Tk. 42,000 and 18,000 respectively. All administrative expenses are fixed and 40% of selling expenses are variable.

The Company has a special order for 5000 units @ Tk. 30. If the order is accepted, cost of direct material will reduce by Tk. 2 per units for all products due to more purchase at a time. No addition selling cost required for this order but administrative expenses will increase by Tk. 3000. Whether the company should accepted the special order.

❖ **Problem 6 (Sell or Process Further)**

A manufacturing company produces three products. The related data are given below:

|                         | Product |         |         |
|-------------------------|---------|---------|---------|
|                         | A       | B       | C       |
| Production (kg)         | 3,000   | 4,000   | 6,000   |
| Selling Price per kg    | Tk. 40  | Tk. 45  | Tk. 30  |
| Joint Cost              | 98,000  | 156,000 | 160,000 |
| Administrative Expenses | 5,000   | 6,000   | 7,000   |
| Selling Expenses        | 2,000   | 4,000   | 4,000   |

If product B is future processed it can be sold @ Tk. 64 per kg. Due to future processing, weight will reduce by 10% and future processing cost Tk. 40,000. Selling expenses will increase by Tk. 1200. Administrative expenses will remain unchanged. Whether Product B should process further.





❖ **Problem 7** (Make or Buy a Component)

Climate Control, Inc., manufactures a variety of heating and air-conditioning units. The company is currently manufacturing all of its own component parts. An outside supplier has offered to sell a thermostat to Climate-Control for Tk. 20 per unit. To evaluate this offer, Climate-Control Inc., has gathered the following information relating to its own cost of producing the thermostat internally:

|  | Per Unit      | 15,000 units per year |
|--|---------------|-----------------------|
| Direct Material                                    | Tk. 6         | Tk. 90,000            |
| Direct Labor                                       | 8             | 120,000               |
| Variable Manufacturing Overhead                    | 1             | 15,000                |
| Fixed Manufacturing Overhead, traceable            | 5*            | 75,000                |
| Fixed Manufacturing Overhead, Common but allocated | 10            | 150,000               |
| <b>Total Cost</b>                                  | <b>Tk. 30</b> | <b>Tk. 450,000</b>    |

- 40% supervisory salaries and 60% depreciation of special equipment (no resale value)

**Required**

1. Assume that the company has no alternative use for the facilities now being used to produce the thermostat, should the outside supplier's offer be accepted? Show all computation.
2. Suppose that if the thermostat were purchased, Climate-Control Inc., could use the freed capacity to launch a new product. The Segment margin of the new product would be Tk. 65,000 per year. Should Climate-Control Inc., accept the offer to buy the thermostats from the outside supplier for Tk. 20 each? Show computation.

❖ **Problem 8** (Make or Buy a Component)

Royal Company manufactures 20,000 units of part R-3 each year for use on its production line. The cost per unit for part R-3 follows:

|                                 |               |
|---------------------------------|---------------|
| Direct Material                 | Tk. 5         |
| Direct Labor                    | 7             |
| Variable Manufacturing Overhead | 3             |
| Fixed Manufacturing Overhead    | 10            |
| <b>Total Cost</b>               | <u>Tk. 25</u> |

An outside supplier has offered to sell 20,000 units of part R-3 each year to Royal Company for Tk. 23.50 per part. If Royal Company accepts this offer, the facilities now being used to manufacture part R-3 could be rented to another company at an annual rental of Tk. 150,000. However, Royal Company has determined that Tk. 6 of the fixed manufacturing overhead being applied to part R-3 would continue even if part R-3 were purchased from the outside supplier.

**Required**

Prepare computations to show the net amount advantage or disadvantage of accepting the outside supplier's offer.



Ex-13-4

| Particulars            | Per unit differential cost |     | Costs of 15000 units |        |
|------------------------|----------------------------|-----|----------------------|--------|
|                        | Make                       | Buy | Make                 | Buy    |
| Cost of Buying         |                            | 20  |                      | 300000 |
| Cost of Making         |                            |     |                      |        |
| Direct Materials       | 6                          |     | 90000                |        |
| Direct Labor           | 8                          |     | 120000               |        |
| Variable M O/H         | 1                          |     | 15000                |        |
| Fixed M. O/H-traceable | 2 (40% of \$5)             |     | 30000                |        |
| Total cost             | 17                         | 20  | 255000               | 300000 |

So, Difference is favor of making \$ 3  
 Comment: No, outside suppliers offer is not accepted.

2. Analysis of Make or Buy Decision:

| Particulars   | Make   | Buy    |
|---|--------|--------|
| Cost of Buying (As above)                                 |        | 300000 |
| Cost of Making (as above)                                 | 255000 |        |
| Segment Margin foregone on new product (Opportunity cost) | 65000  |        |
|   | 320000 | 300000 |

So, Difference in favor of Buying from outside Suppliers  
 Comment: Thus the Co. should accept the offer & Purchase from outside suppliers.

Ex-13-10

Analysis of Make or Buy Decision:

| Particulars            | Per unit differential cost |       | Costs of 20000 units |        |
|------------------------|----------------------------|-------|----------------------|--------|
|                        | Make                       | Buy   | Make                 | Buy    |
| Cost of Buying         |                            | 23.50 |                      | 470000 |
| Cost of Making         |                            |       |                      |        |
| Direct Materials       | 4.80                       |       | 96000                |        |
| Direct Labor           | 7.00                       |       | 140000               |        |
| Variable M O/H         | 3.20                       |       | 64000                |        |
| Fixed M. O/H-traceable | 4.00                       |       | 80000                |        |
| Total cost             | 19.00                      | 23.50 | 380000               | 470000 |

Comment: Outside offer is not accepted.  
 (Note: The remaining \$6 fixed manufacturing overheads would not be relevant, since it would continue even if the specific part were purchased.)

The \$ 150000 rental value of the space being used to produce part R-# represent an opportunity cost of continuing to produce internally.  
 Thus complete analysis goes as follows:

| Particulars                              | Make   | Buy    |
|--|--------|--------|
| Cost of Buying (As above)                |        | 470000 |
| Cost of Making (as above)                | 380000 |        |
| Rental Value foregone (Opportunity cost) | 150000 |        |

|            |         |         |
|------------|---------|---------|
| Total Cost | 530,000 | 470,000 |
|            |         | 60,000  |

Comment: Thus the company should accept the offer & buy from the outside supplier.