

CA



THE INSTITUTE OF  
**CHARTERED** ACCOUNTANTS  
OF SRI LANKA

# SUGGESTED SOLUTIONS

## **13304-Strategic Management Accounting**

CA Professional (Strategic Level I) Examination  
June 2014

**THE INSTITUTE OF CHARTERED ACCOUNTANTS OF SRI LANKA**

**Answer No. 01**

- (a)
- Goal congruence: The prices should be set so that the divisional management's desire to maximize divisional earnings is consistent with the objectives of the company as a whole. The transfer prices should not encourage sub-optimal decision-making. In other words, the system should be so designed that decisions that improve the company profits business unit profits will also improve the company profits.
  - The prices should enable reliable assessments to be made of divisional performance. The transfer prices should be designed in such a way that they help in measuring the economic performance.
  - The prices should seek to maintain the maximum divisional autonomy so that the benefits of decentralization (motivation, better decision-making, initiatives, etc.) are maintained. The profits of one division should not be dependent on the actions of other divisions.
  - The transfer price should provide each segment with the relevant information required to determine the optimum trade-off between company costs and revenues.

(b) Transfer price

|  |          |          |
|--|----------|----------|
| External sale of GCU (Rs.)               | 331.50   | million  |
| Sales qty (50,000-16,000)                | 34,000   | units    |
| Selling price to external market (Rs.)   | 9,750.00 | per unit |
| Selling and distribution cost (Rs.)      | (100.00) | per unit |
| Net selling price (Rs.)                  | 9,650.00 | per unit |
| Internal sales (475.02mn - 331.5m) (Rs.) | 143.52   | million  |
| Internal sales qty                       | 16,000   | units    |
| Internal selling price (Rs.)             | 8,970.00 | per unit |

Net external selling price of compressors is higher than the internal selling price. GCU is **fully utilising its capacity** of 50,000 units too. GCU can sell the quantities that it sells internally, to the **external market at a higher selling price**. Therefore this transfer pricing policy is **not fair to GCU**.

(c) **ROI and RI.**

(Rs.Millions)

|                       | ACD           | GCU          |
|-----------------------|---------------|--------------|
| Operating profit      | 168.00        | 71.62        |
| Capital employed      | 360.00        | 505.00       |
| Cost of capital @ 12% | (43.20)       | (60.60)      |
| <b>RI</b>             | <b>124.80</b> | <b>11.02</b> |
| ROI                   | 47%           | 14%          |

***Factors impacting divisional performance***

- According to the above result, it is clear that GCU is not meeting both RI and ROI targets. This is mainly due to the sub-optimization situation from present transfer pricing policy.
  - **ROI improves with the age of the assets.** GCU has purchased the assets newly. Therefore the net book value is high at the early stages of the project. This will lead to dilute the ROI of the GCU. ROI of ACD is far above the target since it was started several years ago and as a result the PPE's carrying value is lesser.
  - **Depreciation rate** is another factor that the management should be aware of. This will directly affect the operating profit. If two different rates are being used by two divisions then one having the higher depreciation rate will be in an unfavourable state.
- (d) • **Both methods are short term measures** and only consider one year's of operations. Some businesses will take some time to perform well in the market. For example, GCU may be able to make substantial profits with increased prices in the future. The air conditioning division at present, may be in the cash cow stage of the product life cycle.
- Other factors such as **capital invested, size of the operations, nature of the industry** etc. are different from one division to the other. Therefore it is not fair to set a common target RI for both divisions.
  - Both methods use only financial measures. But nowadays **non-financial information** such as product quality, customer returns, rates of defective products, product reworks done etc. should also be considered when evaluating performance.

(e) **ACD**

|  |                 |                |
|--|-----------------|----------------|
| Sales (30,000*15,000) + (20,000*5,000) (Rs.)           | 550.00          | million        |
| Cost of sales (272+17,000*80%*4,000) (Rs.)             | <u>(326.40)</u> | million        |
| Gross profit (Rs.)                                     | 223.60          | million        |
| Compared with previous gross profit (480-272) (Rs.)    | (208.00)        | million        |
| Saving on selling expenses (500*1,000) (Rs.)           | 0.50            | million        |
| <b>ACD will generate an additional profit of (Rs.)</b> | <b>16.10</b>    | <b>million</b> |

### GCU

|  |                     |
|--|---------------------|
| External price (Rs.)                             | 9,750.00            |
| Internal price (Rs.)                             | <u>8,970.00</u>     |
|  | 780.00              |
| Selling and distribution expenses per unit (Rs.) | <u>(100.00)</u>     |
| Price difference per unit                        | <u>680.00</u>       |
| Additional quantity to ACD                       | 4,000 units         |
| <b>Profit of GCU will reduce by Rs.</b>          | <b>2.72 million</b> |

### GOL (Whole company)

|  |                      |
|--|----------------------|
| Additional profit to ACD                           | 16.10 million        |
| Decrease in GCU's profit                           | (2.72) million       |
| <b>Net benefit to the company as a whole (Rs.)</b> | <b>13.38 million</b> |

There is a net benefit to company as a whole, by accepting the special order. Therefore the **special order should be accepted.**

### (f) Casing from GolTech, India

|  |                 |
|--|-----------------|
| Current cost from third party (Rs.)                      | 1,700.00        |
| If imported incremental cost to the group:               |                 |
| Import price @ 132.00 (Rs.)                              | 1,320.00        |
| Variable cost $80\% * 1320 * 1$ (Rs.)                    |                 |
| 1.2  | 880.00          |
| Other expenses (1320*35%) (Rs.)                          | 462.00          |
| <b>Total cost if bought from GolTech, India (Rs.)</b>    | <b>1,342.00</b> |
| Saving per casing if bought from Indian subsidiary (Rs.) | 358.00          |

There is a cost saving if it is imported from the Indian subsidiary. However, further concerns are;

- Income taxes of India on income of GolTech. If taxes are higher than in Sri Lanka, then the net income will drop.
- Taxes applicable when transferring dividends to Sri Lanka. The remittance taxes also should be considered before going forward.
- Taxes applicable for ACD for the receipts of dividend or any other return from India.
- The profitability, availability of tax losses and the potential of carrying forward a tax loss of Goltech India.
- Other transfer pricing rules and enactments in India.
- Changes in duty structure (import duties in Sri Lanka and export duties in India).
- General price levels of similar products in Sri Lanka, to ensure that the product price is within the range of the general price levels to avoid penalties from Sri Lanka Customs for under-valuing product prices.

**Answer No. 02**

(a)

| Cost Matrix  |        |           |           |           |
|--------------|--------|-----------|-----------|-----------|
|              |        | Jul       | Aug       | Sep       |
|              |        | 60,000    | 120,000   | 40,000    |
| Reg Cap Jul  | 50,000 | <b>12</b> | 14        | 16        |
| Addn Cap Jul | 30,000 | <b>24</b> | <b>26</b> | 28        |
| Reg Cap Aug  | 50,000 | 16        | <b>12</b> | 14        |
| Reg Cap Sep  | 60,000 | 20        | <b>16</b> | <b>12</b> |
| Addn Cap Sep | 50,000 | 32        | <b>28</b> | 24        |

| Production Manager - Unit allocation |        |        |         |        |
|--------------------------------------|--------|--------|---------|--------|
|                                      |        | Jul    | Aug     | Sep    |
|                                      |        | 60,000 | 120,000 | 40,000 |
| Reg Cap Jul                          | 50,000 | 50,000 |         |        |
| Addn Cap Jul                         | 10,000 | 10,000 |         |        |
| Reg Cap Aug                          | 50,000 |        | 50,000  |        |
| Reg Cap Sep                          | 60,000 |        | 20,000  | 40,000 |
| Addn Cap Sep                         | 50,000 |        | 50,000  |        |

| Production Manager - Cost Rs '000 |        |            |             |            |              |
|-----------------------------------|--------|------------|-------------|------------|--------------|
|                                   |        | Jul        | Aug         | Sep        |              |
|                                   |        | 60,000     | 120,000     | 40,000     |              |
| Reg Cap Jul                       | 50,000 | <b>600</b> | 0           | 0          |              |
| Addn Cap Jul                      | 10,000 | <b>240</b> | 0           | 0          |              |
| Reg Cap Aug                       | 50,000 | 0          | <b>600</b>  | 0          |              |
| Reg Cap Sep                       | 60,000 | 0          | <b>320</b>  | <b>480</b> |              |
| Addn Cap Sep                      | 50,000 | 0          | <b>1400</b> | 0          |              |
|                                   |        | 840        | 2,320       | 480        | <b>3,640</b> |

| Finance Manager - Unit allocation |        |        |         |        |
|-----------------------------------|--------|--------|---------|--------|
|                                   |        | Jul    | Aug     | Sep    |
|                                   |        | 60,000 | 120,000 | 40,000 |
| Reg Cap Jul                       | 50,000 | 50,000 |         |        |
| Addn Cap Jul                      | 30,000 | 10,000 | 20,000  |        |
| Reg Cap Aug                       | 50,000 |        | 50,000  |        |
| Reg Cap Sep                       | 60,000 |        | 20,000  | 40,000 |
| Addn Cap Sep                      | 30,000 |        | 30,000  |        |

| Finance Manager - Cost Rs. '000 |        |            |            |            |              |
|---------------------------------|--------|------------|------------|------------|--------------|
|                                 |        | Jul        | Aug        | Sep        |              |
|                                 |        | 60,000     | 120,000    | 40,000     |              |
| Reg Cap Jul                     | 50,000 | <b>600</b> | 0          | 0          |              |
| Addn Cap Jul                    | 30,000 | <b>240</b> | <b>520</b> | 0          |              |
| Reg Cap Aug                     | 50,000 | 0          | <b>600</b> | 0          |              |
| Reg Cap Sep                     | 60,000 | 0          | <b>320</b> | <b>480</b> |              |
| Addn Cap Sep                    | 30,000 | 0          | <b>840</b> | 0          |              |
|                                 |        | 840        | 2,280      | 480        | <b>3,600</b> |

The total cost of Finance Manager's proposal is Rs 40,000 less than that of the Production Manager. Therefore Finance Manager's proposal is recommended.

(b)

The initial transportation tableau for Finance Manager's proposal is as follows

| Finance Manager - Unit allocation |        |        |         |        |        |
|-----------------------------------|--------|--------|---------|--------|--------|
|                                   |        | Jul    | Aug     | Sep    | Dummy  |
|                                   |        | 60,000 | 120,000 | 40,000 |        |
| Reg Cap Jul                       | 50,000 | 50,000 |         |        |        |
| Addn Cap Jul                      | 30,000 | 10,000 | 20,000  |        |        |
| Reg Cap Aug                       | 50,000 |        | 50,000  |        |        |
| Reg Cap Sep                       | 60,000 |        | 20,000  | 40,000 |        |
| Addn Cap Sep                      | 50,000 |        | 30,000  |        | 20,000 |

|              | Jul       | Aug       | Sep       | Dummy      |
|--------------|-----------|-----------|-----------|------------|
| Reg Cap Jul  | 12        | <b>14</b> | <b>10</b> | <b>-14</b> |
| Addn Cap Jul | 24        | 26        | <b>22</b> | <b>-2</b>  |
| Reg Cap Aug  | <b>10</b> | 12        | <b>8</b>  | <b>-16</b> |
| Reg Cap Sep  | <b>14</b> | 16        | 12        | <b>-12</b> |
| Addn Cap Sep | <b>26</b> | 28        | <b>24</b> | 0          |

Shadow costs of all unoccupied cells are less than or equal to actual costs  
Therefore this is the optimum solution

**Question No. 03**

(a)

|             |                                     | <b>Soft Drinks</b> | <b>Milk Powder</b> | <b>Toiletries</b> | <b>Total</b> |
|-------------|-------------------------------------|--------------------|--------------------|-------------------|--------------|
|             | Revenue (Rs.)                       | 3,174,000          | 8,402,400          | 4,839,600         | 16,416,000   |
|             | Cost of Goods sold (Rs.)            | 2,400,000          | 6,000,000          | 3,600,000         | 12,000,000   |
|             | Store Support Cost (Rs.)            | 720,000            | 1,800,000          | 1,080,000         | 3,600,000    |
|             | Total Cost (Rs.)                    | 3,120,000          | 7,800,000          | 4,680,000         | 150,000      |
|             |                                     |                    |                    |                   |              |
| <b>(i)</b>  | Operating Income (Rs.)              | 54,000             | 602,400            | 159,600           | 816,000      |
| <b>(ii)</b> | Operating Revenue as a % of Revenue | 1.70%              | 7.17%              | 3.30%             | 4.97%        |

(b)

| <b>Calculation of cost per activity</b> |            |                |                 |
|---|------------|----------------|-----------------|
| Activity / Cost Driver                  | Total Cost | # Cost drivers | cost per driver |
| Ordering / Purchase orders              | 624,000    | 624            | 1,000           |
| Delivery / Deliveries                   | 1,008,000  | 1,260          | 800             |
| Shelf Stocking / Hours                  | 691,200    | 3,456          | 200             |
| Customer Support / Items sold           | 1,228,800  | 614,400        | 2               |

|             |                                    | <b>Soft Drinks</b> | <b>Milk Powder</b> | <b>Toiletries</b> | <b>Total</b> |
|-------------|------------------------------------|--------------------|--------------------|-------------------|--------------|
|             | Revenue (Rs)                       | 3,174,000          | 8,402,400          | 4,839,600         | 16,416,000   |
|             | Cost of Goods sold (Rs)            | 2,400,000          | 6,000,000          | 3,600,000         | 12,000,000   |
|             | Cost of Bottles returned (Rs)      | 48,000             | -                  | -                 | 48,000       |
|             | Ordering Cost                      | 144,000            | 336,000            | 144,000           | 624,000      |
|             | Delivery Cost                      | 96,000             | 700,800            | 211,200           | 1,008,000    |
|             | Shelf Stocking Cost                | 43,200             | 432,000            | 216,000           | 691,200      |
|             | Customer Support Costs             | 100,800            | 883,200            | 244,800           | 1,228,800    |
|             | Total Cost                         | 2,832,000          | 8,352,000          | 4,416,000         | 15,600,000   |
|             |                                    |                    |                    |                   |              |
| <b>(i)</b>  | Operating Income                   | 342,000            | 50,400             | 423,600           | 816,000      |
|             |                                    |                    |                    | -                 | -            |
| <b>(ii)</b> | Operating Income as a % of Revenue | 10.78%             | 0.60%              | 8.75%             | 4.97%        |
|             | Number of purchase orders placed   | 144                | 336                | 144               | 624          |
|             | Number of deliveries received      | 120                | 876                | 264               | 1,260        |
|             | Shelf stocking time (hours)        | 216                | 2,160              | 1,080             | 3,456        |
|             | Items sold                         | 50,400             | 441,600            | 122,400           | 614,400      |

(7)

The ABC system distinguishes the different types of activities more precisely. It also tracks more accurately how individual product lines use resources. Rankings of relative profitability (Operating income as a % of revenue) of the three product lines under the traditional costing system are as follows:

|             | <b>Traditional</b> |   | <b>ABC</b> |   |
|-------------|--------------------|---|------------|---|
| Soft Drinks | 1.70%              | 3 | 10.78%     | 1 |
| Milk Powder | 7.17%              | 1 | 0.60%      | 3 |
| Toiletries  | 3.30%              | 2 | 8.75%      | 2 |

Soft drinks consume fewer resources than the other two. It has fewer deliveries and require less shelf stocking time. In contrast milk powder has the most deliveries and consumes a large percentage of shelf stocking time. It also has the highest number of individual sales items.

The traditional costing system assume that each product uses the resources in each activity area in the same ratio as their respective individual cost of goods sold to total cost of goods sold. Clearly this assumption is incorrect. The traditional costing system is an example of averaging that is too broad.

### Answer No. 04

(a)

|   | Rs. '000      |               |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Year  | 0             | 1             | 2             | 3             | 4             | 5             | 6             |
| Initial investment                              | (30,000)      |               |               |               |               |               |               |
| Sales<br>(1500 * 40,000/1000)                   |               | 60,000        | 60,000        | 60,000        | 60,000        | 60,000        | 60,000        |
| Variable Cost                                   |               |               |               |               |               |               |               |
| - Production Cost (1500<br>* 0.6 * 30,000/1000) |               | (27,000)      | (27,000)      | (27,000)      | (27,000)      | (27,000)      | (27,000)      |
| - Designer fee &<br>Commission                  |               | (12,000)      | (12,000)      | (12,000)      | (12,000)      | (12,000)      | (12,000)      |
| - Additional V cost                             |               | (6,000)       | (6,000)       | (6,000)       | (6,000)       | (6,000)       | (6,000)       |
| <b>Contribution</b>                             |               | <b>15,000</b> | <b>15,000</b> | <b>15,000</b> | <b>15,000</b> | <b>15,000</b> | <b>15,000</b> |
| Tax on Contribution                             |               | (4,200)       | (4,200)       | (4,200)       | (4,200)       | (4,200)       | (4,200)       |
| Tax saving on Research<br>expenditure           |               | 112           | 112           | 112           | 112           | 112           |               |
|   |               | 10,912        | 10,912        | 10,912        | 10,912        | 10,912        | 10,800        |
| Tax saving on investment<br>Allowance           |               | 1,680         | 1,680         | 1,680         | 1,680         | 1,680         |               |
|   |               | 12,592        | 12,592        | 12,592        | 12,592        | 12,592        | 10,800        |
| Discount Factor                                 |               |               |               |               |               | 3.791         | 0.564         |
| DCF   | 53,833        |               |               |               |               | 47,736.27     | 6,096         |
| NPV   | <b>23,833</b> |               |               |               |               |               |               |

(b)

- Initial Outlay

If the amount of the investment is y for investment to be not viable

$$10,912 \times 3.791 + 10,800 \times 0.564 + (y/5) \times 0.28 \times 3.791 = y$$

$$47458.592 = 0.787704 y$$

$$y = 60,250$$

The investment can increase up to Rs 60.25 Mn before investment becomes not feasible

That is by  $30,250/30,000 = 101\%$

- Annual contribution

If the amount of the contribution is C for investment to be not viable

$$4.355 \times 0.72 \times C + 3.791 \times 1792 = 30,000$$

$$C = 7,400$$

The contribution can decline up to Rs 7.4 Mn before investment becomes not feasible

That is by  $7600/15000 = 51\%$

- Life of the project

| <b>Year</b>              | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|
| Post tax cash flow       |          | 12,592   | 12,592   | 12,592   | 12,592   | 12,592   | 10,800   |
| Discounting Factor @ 10% |          | 0.909    | 0.826    | 0.751    | 0.683    | 0.621    | 0.564    |
| DCF                      |          | 11,447   | 10,407   | 9,461    | 8,601    | 7,819    | 6,096    |
| Cumulative DCF           |          | 11,447   | 21,854   | 31,314   | 39,915   | 47,734   | 53,830   |

Discounted payback is approximately 3 years.

Therefore the project life can decline up to 3 years before the project becomes not feasible

That is by 50%

- Discount rate

This is the IRR of the project which is 35%

The Discount rate can increase to 35% before the project becomes not feasible, That is by 250%

(c) Limitations of Sensitivity Analysis

1. changes in each key variables need to be isolated
2. it doesn't give an indication of the probability of occurrence

(d) Possible additional information

1. Are competitors likely to enter the market and its impact
2. how accurate are the estimation of the cash flows
3. How reliable is the performance of the machine; any past experience

### Answer No. 05

- (a)
- **Delay in feedback reporting** - Variance reports are usually prepared on a monthly basis and often are released days or even weeks after the end of the month. Consequently, **the information in the reports may be stale.**
  - **If managers use variance reports as a weapon morale may suffer.** Management tends to focus on the negative and uses variances as a weapon to control subordinates, they may try to cover up unfavorable variances or take actions that are not in the best interest of the company to make sure the variances are favorable. For example, workers may put on a crash effort to increase output at the end of the month to avoid an unfavorable labor efficiency variance. In the rush to produce output, quality may suffer.
  - **Impact of the changing cost structure** - Labor rate standards and efficiency variances assume that the production process is labor-paced; if labor works faster, output will go up. However, output in many companies is no longer determined by how fast labor works; rather, it is determined by the processing speed of machines. Further, they assumes that labor is a variable cost. However, direct labor may be essentially fixed, then an undue emphasis on labor efficiency variances creates pressure to build excess work in process and finished goods inventories.
  - There may be a tendency with standard cost reporting systems to emphasize meeting the standards to the exclusion of other important objectives such as **maintaining and improving quality, on-time delivery, and customer satisfaction.** This tendency can be reduced by using supplemental performance measures that focus on these other objectives.
  - Just meeting standards may not be sufficient; **continual improvement may be necessary to survive in the current competitive environment.** For this reason, some companies focus on the trends in the standard cost variances - aiming for continual improvement rather than just meeting the standards.
  - Shorter product life cycle - **Most of product's life cycle now becoming shorter therefore** new standards should be set whenever new products are introduced.
  - One of the most important condition for successful use of standard costing is a stable production process. However, **flexible manufacturing systems** in the present industries has reduced the stability because of frequently switching among a variety of products on the same production line.
  - Critics claim that variance analysis does not support today's management approaches such as JIT, TQM, BPR etc.
- (b)
- Size of the variance and potential saving if corrected
  - Cost for investigation and cost benefit of the investigation
  - Whether the cause of the variance is completely unavoidable and obvious

(c)

|  |              |
|--|--------------|
| (i) Monthly savings                                | 2.50 million |
| No. of months during which the savings can be made | 6            |
| Discount factor                                    | 2.00%        |

|   |                      |
|---|----------------------|
| <b>PV of expected saving (5.601*2.50mn)</b> | <b>14.00 million</b> |
|---|----------------------|

(ii)

If investigated (based on additional benefit)

|   |                |
|---|----------------|
| Cost of investigating                               | (0.50) million |
| Correcting if out of control (10%*1million)         | (0.10) million |
| Savings if out of control and corrected (10%*14 Mn) | 1.40 million   |
| Benefit if investigated                             | 0.800 million  |

If not investigated no additional benefits.

Since there is a net positive benefit, if investigated, it is advisable to investigate the variance.

### Alternative answer

If investigated;

|  |                              |
|--|------------------------------|
| Cost of investigating                        | (0.50) million               |
| Correcting if out of control (10%*1 million) | <u>(0.10) million</u>        |
| Total cost for investigating                 | <u><u>(0.60) million</u></u> |

If not investigated;

|                                       |                              |
|---------------------------------------|------------------------------|
| Continuing variance = loss saving*10% | <u><u>(1.40) million</u></u> |
|---------------------------------------|------------------------------|

If investigated cost is low, it is recommended to investigate the variance

(iii) Point of indifference

Assume the probability of process being out of control is P, then

$$= 500,000 + 1,000,000P = 14,000,000P$$

$$= 500,000/(14,000,000P - 1,000,000P)$$

$$P = 3.85\%$$

Investigation is desirable when the probability is being out of control exceeds 3.8%. Or Management should make the operation in control at least for 96.2% (100%-3.8%) in order to avoid investigating into future variances.

**Answer No. 06**

(a)

(i) **Prevention costs**

The cost of all activities specifically designed to prevent poor quality in the products or services.

**Appraisal Costs**

The costs associated with measuring, evaluating, or auditing products to ensure conformance to quality standards and performance requirements.

**Internal failure costs**

The costs resulting from products not conforming to its standards or customer needs, occurring prior to delivery or shipment of these products to the customer.

**External failure costs**

The costs resulting from products not conforming to its standards or customer needs, occurring after delivery or shipment of these products to the customer.

(ii) **Prevention costs**

|   | <u>Rs. '000</u> |
|---|-----------------|
| ♦ Training of quality inspectors                      | 1,100.00        |
| <b><u>Appraisal Costs</u></b>                         |                 |
| ♦ Material inspection expenses                        | 1,600.00        |
| ♦ Quality audits                                      | 3,000.00        |
| ♦ Equipment testing before production                 | 2,000.00        |
| ♦ Quality checking of finished goods                  | 4,200.00        |
| <b><u>Internal failure costs</u></b>                  |                 |
| ♦ Cost of reworking defective items                   | 1,000.00        |
| <b><u>External failure costs</u></b>                  |                 |
| ♦ Transportation costs to customer sites for repairs, | 2,500.00        |
| ♦ Repair cost during warranty period                  | 5,000.00        |
| ♦ Cost of customer complaints center                  | 1,700.00        |

(b)

(i)

Business process re-engineering (BPR) involves examining business processes and redesigning these business processes of firm's operation to achieve improvement in cost, quality, speed and service. This requires all the businesses be diagrammed in detail, questioned and then completely redesigned in a simplified manner to eliminate unnecessary activities, to reduce opportunities for errors and to reduce costs.

(ii)

**Material procurement process** should be analysed, broken down to separate activities such as production scheduling, storing materials, processing purchase orders, inspecting materials and paying suppliers. Then unnecessary activities should be eliminated and other activities should be redesigned;

- ◆ Processing purchase orders could be simplified, involving activities could be reduced.
- ◆ JIT could also be used and reduce the material holding cost
- ◆ Long term contracts with material suppliers with pre-agreed standard of quality
- ◆ Material storing in such a way it is convenient to take them for production which reduce cost of material handling.

**Customer invoicing process** involves a set of separate activities, this process can be redesigned in simplified way to reduce cost and increase customer satisfaction. Non value adding activities should be eliminated;

- ◆ Online approval system
- ◆ Replacing manual work with computerised work to reduce time
- ◆ Introduction of a fast invoicing software

- (iii)
- ◆ BPR typically requires **high investment**, particularly in technology. Outdated methods, such as doing a task by hand, face replacement by computer programs.
  - ◆ Some workers may not adapt to the BPR changes (**resistance of workers**), and those assigned new responsibilities can become overwhelmed. Other workers become obsolete if their primary function is eliminated as part of a process overhaul.
  - ◆ Change consume a substantial amount of **time**
  - ◆ **Staff should be trained** for the new system