MODULE 2

Budget

- Budgets are important tools of profit planning, are similar to the broader system of planning in an organization.

- Planning involves the specification of the objectives that the organization will pursue and the fundamental policies that will enable the organization to achieve the predetermined goals.

Budgeting Process

The Planning/ Budgeting process involves four stages. They are:

- objective determination stage
- goal determination stages
- strategy formulation stage
- budget preparation stage

Objective Determination Stage

The first stage is setting the ‘Objectives’ which are defined as the ‘broad and long-range desired state or position in the future’.

They are motivational or directional in nature and are expressed in Qualitative terms.

Goal Determination Stage

The second stage is specifying the goals.
The term goal represents targets, specific in quantitative terms to be achieved in a specific period of time. The timing of introducing new products, purchase of new plant and machinery and expected rate of return are examples of time and quantity oriented goals.

**Strategy Formulation Stage**

The next step involves laying down the strategies.

Strategies denote specific methods or courses of action to achieve the goals, for instance, promotion of sales through price reduction or aggressive advertisement and so on.
Budget Responsibilities

Types Of Budget

- Sales Budget
- Production Budget
- Purchase Budget
- Expenditure Budgets
- Cash Budget
- Master Budget
- Zero Base Budget
- Flexible Budget
Sales Budget

Sales budget is a functional budget. The product wise as well as regional break up of sales estimates are incorporated in the sales budget. The sales budget begins with the previous year actual and incorporates the likely changes

Sales Budget – Example

<table>
<thead>
<tr>
<th>Area</th>
<th>Product</th>
<th>Budget (current month)</th>
<th>Budget (Previous month)</th>
<th>Actual (Previous month)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Qty.</td>
<td>Price</td>
<td>Amount</td>
</tr>
<tr>
<td>North</td>
<td>K1</td>
<td>6000</td>
<td>180000</td>
<td>180000</td>
</tr>
<tr>
<td></td>
<td>K2</td>
<td>3250</td>
<td>48750</td>
<td>48750</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>9250</td>
<td>228750</td>
<td>228750</td>
</tr>
<tr>
<td>South</td>
<td>K1</td>
<td>1500</td>
<td>45000</td>
<td>45000</td>
</tr>
<tr>
<td></td>
<td>K2</td>
<td>6500</td>
<td>97500</td>
<td>97500</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>8000</td>
<td>172500</td>
<td>172500</td>
</tr>
</tbody>
</table>

Production Budget

The production budget is prepared based on the sales estimate incorporated in the sales budget. The adjustments with respect to the opening and closing stock positions that are policy decisions of the business are then made to prepare the production budget.
# Production Budget – Example

<table>
<thead>
<tr>
<th>Particulars</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>1100</td>
<td>1100</td>
<td>1700</td>
<td>1900</td>
<td>2500</td>
<td>2300</td>
<td>10600</td>
</tr>
<tr>
<td>Add: Closing Stock</td>
<td>550</td>
<td>850</td>
<td>950</td>
<td>1250</td>
<td>1150</td>
<td>1000</td>
<td>5750</td>
</tr>
<tr>
<td></td>
<td>1650</td>
<td>1950</td>
<td>2650</td>
<td>3150</td>
<td>3650</td>
<td>3300</td>
<td>16350</td>
</tr>
<tr>
<td>Less: Opening Stock</td>
<td>550</td>
<td>550</td>
<td>850</td>
<td>950</td>
<td>1250</td>
<td>1150</td>
<td>5300</td>
</tr>
<tr>
<td>Production</td>
<td>1100</td>
<td>1400</td>
<td>1800</td>
<td>2200</td>
<td>2400</td>
<td>2150</td>
<td>11050</td>
</tr>
</tbody>
</table>

## Purchase Budget

The purchase budget is another functional budget that estimates the purchase requirement of materials utilized in the production process. The purchase budget is based on the production budget and the standard material consumption requirement for the production estimates.
Purchase Budget-Example

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Material A</th>
<th>Material B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty.</td>
<td>Price</td>
</tr>
<tr>
<td>Consumption during the year</td>
<td>108000</td>
<td>2</td>
</tr>
<tr>
<td>Desired closing stock</td>
<td>13000</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>121000</td>
<td>178000</td>
</tr>
<tr>
<td>Expected stock at commencement</td>
<td>12000</td>
<td>1.5</td>
</tr>
<tr>
<td>Materials to be purchased</td>
<td>109000</td>
<td>2</td>
</tr>
</tbody>
</table>

**Expenditure Budgets**

Expenditure budgets may be drafted as fixed / flexible budgets. A fixed budget is one which is prepared keeping in mind one level of activity. It is defined as one which is designed to remain unchanged irrespective of the level of activity attained.

In contrast, flexible budget is one which is designed to change in relation
to the level of activity attained. Flexible budgets are prepared where the nature of business is such that it is difficult to predict the demand/sale of goods.

**Expenditure Budget – Example**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Cost behaviour</th>
<th>Fixed Budget</th>
<th>Flexible Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>100%</td>
<td>70%</td>
<td>110%</td>
</tr>
<tr>
<td>Hours</td>
<td>5000</td>
<td>3500</td>
<td>5500</td>
</tr>
<tr>
<td>Wages</td>
<td>Variable</td>
<td>2000</td>
<td>1400</td>
</tr>
<tr>
<td>Repairs</td>
<td>Semi-variable</td>
<td>300</td>
<td>205</td>
</tr>
<tr>
<td>Rent</td>
<td>Fixed</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>Power</td>
<td>Semi-variable</td>
<td>1180</td>
<td>875</td>
</tr>
<tr>
<td>Supplies</td>
<td>Variable</td>
<td>1200</td>
<td>840</td>
</tr>
<tr>
<td>Supervision</td>
<td>Semi-variable</td>
<td>950</td>
<td>600</td>
</tr>
<tr>
<td>Depreciation</td>
<td>Semi-variable</td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td>Administration</td>
<td>Fixed</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Selling</td>
<td>Semi-variable</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td>6860</td>
<td>5120</td>
</tr>
<tr>
<td><strong>Hourly rates</strong></td>
<td></td>
<td><strong>1.37</strong></td>
<td><strong>1.46</strong></td>
</tr>
</tbody>
</table>

**Cash Budget**

A cash budget consolidates all the cash inflows and outflows for the business. The cash budget is also a functional budget. The cash budget helps the business to plan the project purchases as well as to provide for the loan requirements. The cash budgets also help in defining the repayment plans for short and long term loans of the business.
The cash budget is based upon the business policy of holding a certain amount as cash. This is the desired opening cash balance for the business. Accordingly, the cash budget forecasts the loan requirements or short term investments that are to be made with excess cash at any specific time.

**Cash Budget-Example**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening Balance</td>
<td>6000</td>
<td>3950</td>
<td>3000</td>
<td>6000</td>
</tr>
<tr>
<td>Receipts:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>14650</td>
<td>15650</td>
<td>16650</td>
<td>46950</td>
</tr>
<tr>
<td>Dividend income</td>
<td></td>
<td>1000</td>
<td></td>
<td>1000</td>
</tr>
<tr>
<td>Vehicle advance</td>
<td></td>
<td>9000</td>
<td></td>
<td>9000</td>
</tr>
<tr>
<td><strong>Total balance</strong></td>
<td>20650</td>
<td>28600</td>
<td>20650</td>
<td>62950</td>
</tr>
<tr>
<td>Payments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creditors (materials)</td>
<td>9600</td>
<td>9000</td>
<td>9200</td>
<td>27800</td>
</tr>
<tr>
<td>Salary</td>
<td>3150</td>
<td>3500</td>
<td>3900</td>
<td>10550</td>
</tr>
<tr>
<td>Overheads</td>
<td>1950</td>
<td>2100</td>
<td>2250</td>
<td>6300</td>
</tr>
<tr>
<td>Plant Installment</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
<td>6000</td>
</tr>
<tr>
<td>Preference dividend</td>
<td>10000</td>
<td></td>
<td></td>
<td>10000</td>
</tr>
<tr>
<td><strong>Total Payments</strong></td>
<td>26700</td>
<td>16600</td>
<td>19350</td>
<td>62650</td>
</tr>
<tr>
<td>Closing Balance</td>
<td>3950</td>
<td>3000</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

**Master Budget**

The overall or master budget summarizes the other functional budgets. Consolidating the functional budgets, an income and expenditure budget and budgeted balance sheet are prepared. The master budget is usually a one-year budget expressing the expected asset position and capital and liability positions for the projected year.
### Master Budget – Income Statement

<table>
<thead>
<tr>
<th>Particulars</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>12000</td>
<td>15000</td>
<td>10000</td>
<td>37000</td>
</tr>
<tr>
<td>Less: cost of goods sold</td>
<td>5000</td>
<td>7000</td>
<td>4300</td>
<td>16300</td>
</tr>
<tr>
<td>Factory overheads</td>
<td>2000</td>
<td>2000</td>
<td>2000</td>
<td>6000</td>
</tr>
<tr>
<td>Administrative overheads</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>3000</td>
</tr>
<tr>
<td>Selling overheads</td>
<td>500</td>
<td>600</td>
<td>400</td>
<td>1500</td>
</tr>
<tr>
<td>Net profit</td>
<td>3500</td>
<td>4400</td>
<td>2300</td>
<td>10200</td>
</tr>
</tbody>
</table>

### Master Budget-Balance Sheet

<table>
<thead>
<tr>
<th>Particulars</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>80000</td>
<td>80000</td>
<td>10000</td>
<td>100000</td>
</tr>
<tr>
<td>Reserves</td>
<td>15000</td>
<td>17000</td>
<td>18000</td>
<td>18000</td>
</tr>
<tr>
<td>Long term borrowings</td>
<td>40000</td>
<td>50000</td>
<td>70000</td>
<td>70000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>135000</strong></td>
<td><strong>147000</strong></td>
<td><strong>188000</strong></td>
<td><strong>188000</strong></td>
</tr>
<tr>
<td>Fixed assets</td>
<td>86000</td>
<td>93000</td>
<td>120000</td>
<td></td>
</tr>
<tr>
<td>current assets</td>
<td>63000</td>
<td>87000</td>
<td>91000</td>
<td>91000</td>
</tr>
<tr>
<td>Less:current liabilities</td>
<td>14000</td>
<td>33000</td>
<td>23000</td>
<td>23000</td>
</tr>
<tr>
<td>Working capital</td>
<td>49000</td>
<td>54000</td>
<td>68000</td>
<td>68000</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>135000</strong></td>
<td><strong>147000</strong></td>
<td><strong>188000</strong></td>
<td><strong>188000</strong></td>
</tr>
</tbody>
</table>
**Zero Base Budget**

An illustration of a long term budget is the Zero base budget. Zero Base Budgeting process looks at requirements/plans anew each year irrespective of project continuity. These are necessarily long term project budgets.

**Variance Analysis**

A Variance results from the comparison of the actual with the budgets/standards/forecasts.

**Budget**

A budget is a comprehensive financial plan giving the quantitative details for achieving the financial & operational goals on an organization.

**Standards**

Standards are expected cost to be incurred under normal efficient operating conditions.

**Forecasts**

Forecasts are projected data arrived at using historical data patterns of quantitative indicators.
Variance Analysis

Types Of Variances

- Material variances
- Labor variances
- Overhead variances
- Sales variances
- Margin variances

Material Cost Variance

- Material cost variance represents the difference between the actual material value and standard material value for a given output.
- The formula for the measurement of material cost variance (MCV) will be:

  \[ MCV = (SP \times SQ) - (AP \times AQ) \]

  Where: SP-Standard price, SQ-Standard quantity,
• AP-Actual price, AQ-Actual quantity.

Material Price And Usage Variances

• Material price variance captures that part of cost variance which is due to the difference in price per unit of materials. The formula for the measurement of material price variance (MPV) will be:

\[ MPV = (SP - AP) \times AQ. \]

• Material usage variance is that part of cost variance which is due to the difference in the utilization of material quantity. The formula for the measurement of material usage variance (MUV) will be:

\[ MUV = (SQ - AQ) \times SP. \]

Material Variance

**Direct Material Variances**

- **Material Cost Variance (MCV)**
- **Material Price Variance (MPV)**
- **Material Usage Variance (MUV)**

**Material Variance-Example**

\[
\text{MPV} = (\text{SP} - \text{AP}) \times \text{AQ} = (2 - 3) \times 550 = 550 \text{ (W)}
\]

\[
\text{MUV} = (\text{SQ} - \text{AQ} \times \text{SP}) = (600 - 550 \times 2) = 100 \text{ (F)}
\]

\[
\text{HCV} = \text{MPV} + \text{MUV} = 450 \text{ (U)}
\]
**Labor Variance**

Labor cost variance represents the difference between the actual labor cost paid and standard labor cost for a given output.

The formula for the measurement of labor cost variance (LCV) will be:

\[
LCV = (SR \times SH) - (AR \times AH)
\]

Where: SR-Standard rate, \( SH \)-Standard hours, \( AR \)-Actual rate, \( AH \)-Actual hours.

**Labor Rate And Efficiency Variances**

Labor rate variance captures that part of cost variance which is due to the difference in wage rate of labor. The formula for the measurement of labor rate variance (LRV) will be:

\[
LRV = (SR - AR) \times AH.
\]

Labor efficiency variance measures that part of cost variance which is due to the difference in the efficient performance of labor. The formula for the measurement of labor efficiency variance (LEV) will be:

\[
LEV = (SH - AH) \times SR.
\]

Where: SR-Standard rate, \( SH \)-Standard hours, \( AR \)-Actual rate, \( AH \)-Actual hours.
Labor Variance

Overhead Variance

- Overhead variance represents the difference between the actual overhead cost incurred and standard overhead cost for a given output.
- The formula for the measurement of overhead variance (OV) will be:
  \[
  OV = (\text{Standard overheads}) - (\text{Actual overheads})
  \]
- Variable overhead variance captures that part of variance which is directly related to production.

Variable And Fixed Overhead Variances

Variable overhead variance measures the overheads that could be identified as varying with the output. The formula for the measurement of variable overhead variance (VOV) will be:
VOV = (Standard variable overheads - Actual variable overheads).

Fixed overhead variance measures that part of overhead variance which does not alter in a given time context.

The formula for the measurement of fixed overhead variance (FOV) will be:

FOV = (Standard fixed overhead - Actual fixed overhead).

**Overhead Variance**

- **Variable Overhead Variance (VOV)**
- **Fixed Overhead Variance (FOV)**
Fixed And Variable Overhead Variance –Example

- **Fixed overheads**: Budgeted Rs.3,000; Actual Rs.3,000
- **Variable overheads**: Budget Rs.1,500; Actual Rs. 3,000
- **Output**: Budgeted 3,000 units; Actual 2,500 units

**Variable Overhead Variance (Vov)**

- **Variable overhead variance** = (Standard variable overhead - Actual variable overhead)

\[
VOV = (SVO - AVO) = \left( 2500 \times \left( \frac{1500}{3000} \right) \right) - 3000
\]

= Rs.1,750 unfavorable.

**Fixed Overhead Variance (FOV)**

- **Fixed overhead variance** = (standard fixed overhead - actual fixed overhead)

\[
FOV = (SOV - AOV) = \left( 2500 \times \left[ \frac{3000}{3000} \right] \right) - 3000
\]

= Rs.500 unfavorable.

- **Total Overhead Variance** = VOV + FOV = Rs.2,250 unfavorable.
Sales Variance

- *Sales variance represents the difference between the actual sales incurred and standard sales.*

- *The formula for the measurement of sales variance (SLV) will be:*

\[
SLV = (BU \times BP) - (AU \times AP)
\]

where \( BU \)-Budgeted units, \( BP \)-Budgeted price,
- \( AU \)-Actual units, \( AP \)-Actual price.

Sales Price And Volume Variances

Sales price variance captures that part of variance which is directly related to product price. The formula for the measurement of sales price variance (SPV) will be:

\[
SPV = (BP - AP) \times AU.
\]

Sales volume variance measures that part of sales value variance which relates to the quantity of units sold. The formula for the measurement of sales volume variance (SVV) will be:

\[
SVV = (BU - AU) \times BP.
\]
Where BU-Budgeted units, BP-Budgeted price, AU-Actual units, AP-Actual price.

**Sales Variance**

Sales Variance

<table>
<thead>
<tr>
<th>Product</th>
<th>Budgeted</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty. (Units)</td>
<td>Price (Rs.)</td>
</tr>
<tr>
<td>PEE</td>
<td>3,000</td>
<td>2</td>
</tr>
<tr>
<td>TEE</td>
<td>2,000</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>5,000</td>
<td>12,000</td>
</tr>
</tbody>
</table>
Sales Variance-Example

- **Sales variance** = \( (BU \times BP) - (AU \times AP) \)
  
  \[
  \begin{align*}
  \text{Product PEE} &= (3,000 \times 2) - (2,000 \times 3) = 0 \\
  \text{Product TEE} &= (2,000 \times 3) - (4,000 \times 2) = 2,000 \text{ (F)} \\
  \text{Total (SLV)} &= \text{Rs.2,000 (F)}
  \end{align*}
  \]

- **Sales price variance** = \( (SP - AP) \times AU \)
  
  \[
  \begin{align*}
  \text{Product PEE} &= (2 - 3) \times 2,000 = 2,000 \text{ (F)} \\
  \text{Product TEE} &= (3 - 2) \times 4,000 = 4,000 \text{ (UF)} \\
  \text{Total (SPV)} &= \text{Rs.2,000 (UF)}
  \end{align*}
  \]

- **Sales volume variance** = \( (SU - AU) \times SP \)
  
  \[
  \begin{align*}
  \text{Product PEE} &= (3,000 - 2,000) \times 2 = 2,000 \text{ (UF)} \\
  \text{Product TEE} &= (2,000 - 4,000) \times 3 = 6,000 \text{ (F)} \\
  \text{Total (SVV)} &= \text{Rs.4,000 (F)}
  \end{align*}
  \]

\[
\text{Total Sales variance (SLV) = SPV + SVV} = \text{Rs.2,000 (F)}
\]

Margin Variance

- **Margin variance** represents the difference between the actual profit incurred and standard profit.

- The formula for the measurement of margin variance (MV) will be:

\[
MV = (BU \times BPR) - (AU \times APR)
\]

where: \( BU \)-Budgeted units, \( BPR \)-Budgeted Profits,
Margin Rate And Volume Variances

Margin rate variance captures that part of margin variance which is directly related to product price. The formula for the measurement of margin rate variance (MRV) will be:

\[ MRV = (BPR - APR) \times AU. \]

Margin volume variance measures that part of margin variance which relates to the quantity of units sold. The formula for the measurement of margin volume variance (MVV) will be:

\[ MVV = (BU - AU) \times BPR. \]

Where: BU-Budgeted units, BPR-Budgeted Profits, AU-Actual Units, APR-Actual profits.
Margin Variance-Example

<table>
<thead>
<tr>
<th>Product</th>
<th>Budget Sales</th>
<th>Actual Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty. (Units)</td>
<td>Price (Rs.)</td>
</tr>
<tr>
<td>ESS</td>
<td>3,000</td>
<td>40 per unit</td>
</tr>
<tr>
<td>BEE</td>
<td>5,000</td>
<td>20 per unit</td>
</tr>
</tbody>
</table>

Margin Variance-Example

- **Margin variance (MV)** = \((BU \times BPR) - (AU \times APR)\)
  
  \[
  Product \ ESS = (3,000 \times 5) - (5,000 \times 15) = 60,000 \ (F)
  
  Product \ BEE = (5,000 \times 8) - (4,000 \times 3) = 28,000 \ (UF)
  
  Total (MV) = Rs.32,000 \ (F)
  \]

- **Margin price variance (MPV)** = \((BPR - APR) \times AU\)
  
  \[
  Product \ ESS = (40 - 50) \times 5,000 = 50,000 \ (F)
  
  Product \ BEE = (20 - 15) \times 4,000 = 20,000 \ (UF)
  
  Total (MPV) = Rs.30,000 \ (F)
  \]
• Margin volume variance (MVV) = (BU - AU) X BPR
  Product ESS = (3,000 - 5,000) X 5 = 10,000 (F)
  Product BEE = (5,000 - 4,000) X 8 = 8,000 (UF)
  Total (MVV) = Rs.2,000 (F)

• Total Margin variance (MV) = MPV + MVV = Rs.32,000 (F)