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## BUDGETARY CONTROL

### Introduction ✓

Budget is the most widely used and highest rated management tool of cost reduction and control. It is a tool that helps managers in planning and control functions. *Planning* is the key to good management as it involves looking systematically at the future. Business budgets help managers in developing financial plan to guide them in allocating their resources over a specific future period. *Control* is the process of measuring and correcting actual performance to ensure that plans for implementing the chosen course of action are carried out.

### Meaning and Definition of Budget ✓

Budget refers to a plan relating to a definite future period of time expressed in monetary and/or quantitative terms. In relation to business, a budget is a formal expression of the expected incomes and expenditures for a definite future period. The Chartered Institute of Management Accountants (C.I.M.A.) London, has defined a budget as "a financial and/or quantitative statement, prepared prior to a defined period of time, of the policy to be pursued during that period for the purpose of attaining a given objective." It may include income, expenditure and employment of capital.

In this words of Gordon Shillinglaw, a business budget is "a pre-determined detailed plan of action, developed and distributed as a guide to current operations and as a partial basis for subsequent evaluation of performance."

According to Brown and Howard, "A budget is a pre-determined statement of management policy during a given period which provides a standard for comparison with the results actually achieved."

### Characteristics – Budgets have the following characteristics :

- (a) A budget is primarily a planning device but it also serves as a basis for performance evaluation and control.
- (b) A budget is prepared either in money terms or in quantitative terms or in both.
- (c) A budget is prepared for a definite future period.
- (d) Purpose of a budget is to implement the policies formulated by management for attaining the given objectives.

## Budgeting

The act of preparing budgets is called budgeting. In the words of J. Batty, "the entire process of preparing the budgets is known as budgeting."

### Meaning and Definition of Budgetary Control ✓

Budgetary control is a system of controlling costs through preparation of budgets. Budgeting is thus only a part of the budgetary control. According to C.I.M.A., London, "*Budgetary control is the establishment of budgets relating to the responsibilities of executives of a policy and the continuous comparison of the actual with the budgeted results, either to secure by individual action the objective of the policy or to provide a basis for its revision.*"

In the words of Brown and Howard, "*Budgetary control system is a system of controlling costs which includes the preparation of budgets, co-ordinating the departments and establishing responsibilities, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability.*"

✓ **Characteristics**—The main characteristics of budgetary control are :

- (a) *Establishment of budgets* for each function/department of the organisation.
- (b) *Comparison* of actual performance with the budgets on a continuous basis.
- (c) *Analysis of variations* of actual performance from that the budgeted performance to know the reasons thereof.
- (d) Taking suitable *remedial action*, where necessary.
- (e) *Revision of budgets* in view of changes in conditions.

The principles involved in budgeting have been likened to those followed by the captain of a ship. Before the voyage, he will plan his route, taking into account such factors as shipping hazards, tides and possible adverse weather forecasts. During the journey, he will record details of progress and frequently check actual progress with that planned. Though trying to keep to the plan, he may have to deviate from the plan if prevailing circumstances require it. On completion of the journey, he will compare the conditions he encountered with those he expected. The experience so gained will be used by him in planning similar voyages in the future. This simple analogy serves to illustrate the basic practice used in budgeting and budgetary control.

The technique of budgetary control is now widely used in the business world. Many businesses fail because of lack of efficient planning which could have revealed that the business should not have been started or that one should have been prepared to face serious dangers ahead.

### Objectives of Budgetary Control ✓

The following are the main objectives of a budgetary control system.

1. **Planning.** A budget provides a detailed plan of action for a business over a definite period of time. Detailed plans are drawn up relating to production, sales, raw material requirements, labour needs, advertising and sales promotion performance, research and development activities, capital additions, etc. Planning helps in anticipating many problems long before they may arise and solutions can be sought through careful study. Thus most business emergencies can be avoided by planning. In brief, budgeting forces managements to think ahead, to anticipate and prepare for the situation.
2. **Co-ordination.** Budgeting aids managers in co-ordinating their efforts so that objectives of the organisation as a whole harmonise with the objectives of its divisions. Effective planning and organising contribute a lot in achieving co-ordination. There should be co-ordination in the budgets of various

departments. For example, the budget of sales should be in co-ordination with the budget of production. Similarly, the production budget should be prepared in co-ordination with the purchase budget, and so on.

**3. Communication.** A budget is a communication device. The approved budget copies are distributed to all management personnel which provides not only adequate understanding and knowledge of the programmes and policies to be followed but also alerts about the restrictions to be adhered to.

It is not the budget itself that facilitates communication, but the vital information is communicated in the act of preparing budgets and participation of all responsible individuals in this act.

**4. Motivation.** A budget is a useful device for motivating managers to perform in line with the company objectives. If individuals have actively participated in the preparation of budgets, it acts as a strong motivating force to achieve the targets.

**5. Control.** Control is necessary to ensure that plans and objectives as laid down in the budgets are being achieved. Control, as applied to budgeting, is a systematised effort to keep the management informed of whether the planned performance is being achieved or not. For this purpose, a comparison is made between plans and actual performance. The difference between the two is reported to the management for taking corrective action.

**6. Performance evaluation.** A budget provides a useful means of informing managers how well they are performing in meeting targets they have previously helped to set. In many companies there is a practice of rewarding employees on the basis of their achieving the budget targets or promotion of a manager may be linked to his budget achievement record.

### Advantages of Budgetary Control

Budgetary control provides the following advantages :

1. Budgeting compels managers to think ahead—to anticipate and prepare for changing conditions.
2. Budgeting co-ordinates the activities of various departments and functions of the business.
3. It increases production efficiency, eliminates waste and controls the costs.
4. It pinpoints efficiency or lack of it.
5. Budgetary control aims at maximisation of profits through careful planning and control.
6. It provides a yardstick against which actual results can be compared.
7. It shows management where action is needed to remedy a situation.
8. It ensures that working capital is available for the efficient operation of the business.
9. It directs capital expenditure in the most profitable direction.
10. It instills into all levels of management a timely, careful and adequate consideration of all factors before reaching important decisions.
11. A budget motivates executives to attain the given goals.
12. Budgetary control system creates necessary conditions for the introduction of standard costing technique.
13. Budgeting also aids in obtaining bank credit.
14. A budgetary control system assists in delegation of authority and assignment of responsibility.
15. Budgeting creates cost consciousness and introduces an attitude of mind in which waste and inefficiency cannot thrive.

### Limitations of Budgetary Control ✓

The list of advantages given above is impressive, but a budget is not a cure all for organisation ills. Budgetary control system suffers from certain limitations and those using the system should be fully aware of them.

The main limitations are :

1. **The budget plan is based on estimates.** Budgets are based on forecasts and forecasting cannot be an exact science. Absolute accuracy, therefore, is not possible in forecasting and budgeting. The strength or weakness of the budgetary control system depends to a large extent, on the accuracy with which estimates are made. Thus, while using the system, the fact that budget is based on estimates must be kept in view.
2. **Danger of rigidity.** A budget programme must be dynamic and continuously deal with the changing business conditions. Budgets will lose much of their usefulness if they acquire rigidity and are not revised with the changing circumstances.
3. **Budgeting is only a tool of management.** Budgeting cannot take the place of management but is only a tool of management. "The budget should be regarded not as a master, but as a servant." Sometimes it is believed that introduction of a budget programme is alone sufficient to ensure its success. Execution of a budget will not occur automatically. It is necessary that the entire organisation must participate enthusiastically in the programme for the realisation of the budgetary goals.
4. **Opposition from staff.** Employees may not like to be evaluated and thus oppose introduction of budgetary control system. As such, inefficient managers may try to create difficulties in the way of introducing and operating this system.
5. **Expensive technique.** The installation and operation of a budgetary control system is a costly affair as it requires the employment of specialised staff and involves other expenditure which small concerns may find difficult to incur. However, it is essential that the cost of introducing and operating a budgetary control system should not exceed the benefits derived therefrom.

### FUNCTIONAL BUDGETS

A functional budget is one which relates to a particular function of the business, e.g., Sales Budget, Production Budget, Purchase Budget, etc. These are components of master budget. Specific functional budgets to be prepared in a business vary from organisation to organisation. The common types of functional budgets for a manufacturing concern are discussed here in brief.

#### Sales Budget ✓

In most companies, the sales budget is not only the most important but also the most difficult budget to prepare. The importance of this budget arises from the fact that if sales figure is incorrect, then practically all other budgets will be affected. The difficulties in the preparation of this budget arise because it is not easy to estimate consumer demand, particularly when a new product is introduced.

The sales budget is a statement of planned sales in terms of quantity and value. It forecasts what the company can reasonably expect to sell to its customers during the budget period. The sales budget can be prepared to show sales classified according to products, salesmen, customers, territories and periods, etc.

**Factors:** The factors to be considered in forecasting sales are the following:

1. **Past sales.** Analysis of the past sales shows the trends to date and any seasonal or cyclical fluctuations. It is, therefore, not difficult to suggest future trends from the analysis of the past sales.

2. **Reports by salesmen.** The salesmen are in close touch with the market and thus, they may be required to prepare detailed estimates of sales that they are likely to make in their respective areas during the budget period. The report of each salesman should be studied in the light of his past assessment and actual sales.

3. **Company conditions.** Any change in policies and methods of the company and their effects on sales should be considered. For example, additional spending on advertising, introduction of new channels of distributions, introduction of new products, etc. should all have some effect of a sales budget.

4. **Business conditions.** Any changes in economic conditions and that in related business activities and their effect on company sales should be considered. Information should be obtained about competing industries to assess the strength of competition and about the customer requirement to determine their demand.

5. **Special conditions.** In the preparation of sales forecast, any new external developments taking place should also be considered. For example, when an industry manufactures products for another industry, it will be necessary to analyse the trend of sales in that industry. A tyre manufacturer would estimate the sales of cars or scooters on which tyres are used.

6. **Market analysis.** Some companies depend upon market analysis and research to measure the potential demand for their products. Such an analysis reports on the state of the market, fashion trends, the type of products design required, activities of the competitors and other factors which may have a bearing on the sales of the company.

### Production Budget

The production budget is a plan of production for the budget period. It is first drawn up in quantities of each product and when the remaining budgets have been compiled and cost of production calculated, then the quantities of production cost are translated into money terms, what in effect becomes a production cost budget.

The production budget is the initial step in budgeting manufacturing operations. In addition to production budget, there are three other budgets relating to manufacturing activities of a company. These are raw materials budget, labour budget and production overhead budget.

The principal considerations involved in budgeting production are :

- (a) **Sales budget.** When sales is the principal budget factor, the production budget will be based on the volume of sales forecast by the sales budget.
- (b) **Inventory policy.** The management decision regarding quantities needed in stock at all times to meet customer requirements is an important factor. In deciding on the inventory policy, factors like storage facilities, length of the production period, perishability of product, risk of price changes, etc. have to be given due consideration.
- (c) **Production capacity.** The production capacity of each department should be worked out and budget figures should be within these limits.

However, when production capacity falls short of sales requirements, the following alternatives may be considered :

- (i) Purchase of additional plant and machinery.

### Types of Functional Budgets

1. Sales Budget.
2. Production Budget.
3. Production Cost Budget.
4. Raw Materials Budget.
5. Purchases Budget.
6. Labour Budget.
7. Production Overhead Budget.
8. Selling and Distribution Cost Budget.
9. Administration Cost Budget
10. Cash Budget.
11. Capital Expenditure Budget.

- (ii) Introduction of additional shift.
- (iii) Introduction of overtime working.
- (iv) Hiring machinery.
- (v) Sub-contracting production of components.

(d) **Management policy.** Production policy of the management plays an important role in budgeting production. For example, management may decide to buy a particular component part from outside instead of manufacturing it. This will influence production budget.

### Production Cost Budget

This budget shows the estimated cost of production. The production budget (explained above) shows the quantities of production. These quantities of production are expressed in terms of cost in production cost budget. The cost of production is shown in detail in respect of material cost, labour cost and factory overhead. Thus Production Cost Budget is based upon Production Budget, Material Cost Budget, Labour Cost Budget and Factory Overhead Budget.

### Illustration 7.1

The following information has been made available from the records of Precision Tools Ltd. for the six months of 2006 (and the sales of January 2007) in respect of product X;

- (i) The units to be sold in different months are :

July 2006	1,100	November 2006	2,500
August 2006	1,100	December 2006	2,300
September 2006	1,700	January 2007	2,000
October 2006	1,900		

- (ii) There will be no work-in-progress at the end of any month.

- (iii) Finished units equal to half the sales of the next month will be in stock at the end of every month (including June 2006).

- (iv) Budgeted production and production cost for the year ending 31st Dec., 2006 are thus:

Production (units)	22,000
Direct materials per unit	Rs. 10
Direct wages per unit	Rs. 4
Total factory overhead apportioned to production	Rs. 88,000

You are required to prepare :

- (a) Production Budget for the six months of 2006, and
- (b) Summarised Production Cost Budget for the same period.

### Solution

#### Production Budget for the six months ending Dec. 2006

	July Units	Aug. Units	Sep. Units	Oct. Units	Nov. Units	Dec. Units	Total
Estimated sales	1,100	1,100	1,700	1,900	2,500	2,300	
Add: Closing stock	550	850	950	1,250	1,150	1,000	
	1,650	1,950	2,650	3,150	3,650	3,300	
Less: Opening stock	550	550	850	950	1,250	1,150	
Production	1,100	1,400	1,800	2,200	2,400	2,150	11,050

**Production Cost Budget**  
for the six months ending Dec. 2006

(Production: 11,050 units)

	@	Rs.
Direct materials	Rs. 10 for 11,050 units	1,10,500
Direct wages	Rs. 4 for 11,050 units	44,200
*Factory overhead	Rs. 4 for 11,050 units	44,200
<b>Total Production Cost</b>		<b>1,98,900</b>

\*Factory overhead per unit =  $\text{Rs. } 88,000 \div 22,000 \text{ units} = \text{Rs. } 4$ .

### Raw Material Budget

This budget shows the estimated quantities of all the raw materials and components needed for production demanded by the production budget. Raw material budget serves the following purposes:

- (a) It assists purchasing department in planning the purchases.
- (b) It helps in the preparation of purchase budget.
- (c) It provides data for raw material control.

It should be noted that raw material budget generally deals with only the direct materials. Indirect materials and supplies are included in the overhead cost budget.

### Purchase Budget

Careful planning of purchases offers one of the most significant areas of cost saving in many companies. The purchase manager should be assigned the direct responsibility for preparing a detailed plan of purchases for the budget period and for submitting the plan in the form of a purchase budget.

The purchase budget provides details of the purchases which are planned to be made during the period to meet the needs of the business. It indicates:

- (a) The quantities of each type of raw material and other items to be purchased;
- (b) The timing of purchases;
- (c) The estimated cost of material purchases.

**Factors:** In preparing a purchase budget, a number of factors must be considered, including the following:

- (a) Opening and closing stocks to be maintained as it will affect material requirements.
- (b) Maximum and minimum stock quantities.
- (c) Economic order quantities.
- (d) Financial resources available.
- (e) Purchase orders placed before the budget period against which supplies will be received during the period under consideration.
- (f) Policy of the management regarding materials or components to be manufactured within the business as distinct from those purchased from outside.

**Purposes:** The main purposes of a purchase budget are as follows :

- (a) To enable the purchasing department to plan its purchases and enter into long term contracts, where advantageous.
- (b) To record the material prices on which the plan represented by the budget is based.
- (c) To facilitate the management of finance of the business by defining the cash requirements in respect of the budget period and for shorter runs.

The purchase budget differs from the raw material budget in that purchase budget specifies both quantities and rupee costs, whereas raw material budget is usually limited to quantities only. Secondly, purchase budget includes direct and indirect materials, finished goods for resale, services like electricity and gas, etc. while raw material budget includes only direct material requirements.

### Illustration 7.2

The sales manager of Mahindra & Co. Ltd reports that next year he expects to sell 50,000 units of a certain product.

The production manager consults the storekeeper and casts his figures as follows: Two kinds of raw materials A and B are required for manufacturing the product. Each unit of the product requires 2 kg of A and 3 kg of B. The estimated opening balances at the commencement of the next year are— Finished Product, 10,000 units; A, 12,000 kg; B 15,000 kg. The desirable closing balances at the end of the next year are: Finished product, 14,000 units; A, 13,000 kg; B, 16,000 kg.

Draw up a Materials Purchases Budget for the next year.

### Solution

Estimated production quantity during the year is not given, it is calculated as under.

Sales during the year	50,000 units
Add: Desired stock at the end of next year	14,000 units
Total	64,000 units
Less: Expected stock at the beginning of the next year	10,000 units
Estimated production	54,000 units

### Purchase Budget for the period .....

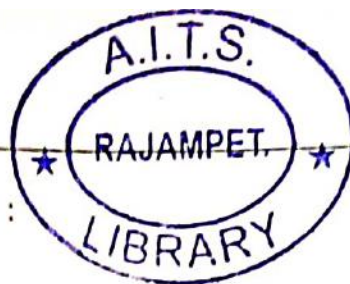
Item	Material A kg	Material B kg
Consumption during the year :		
A—54,000 units @ 2 kg per unit	1,08,000	—
B—54,000 units @ 3 kg per unit	—	1,62,000
Add: Desired stock at the end of next year	13,000	16,000
	1,21,000	1,78,000
Less: Expected stock at the commencement of next year	12,000	15,000
Quantities of materials to be purchased	1,09,000	1,63,000

### Labour Budget

Labour cost is classified into direct and indirect. Some companies prepare a labour budget that includes both direct and indirect labour, while others include only direct labour cost and include indirect labour in the overhead cost budget.

The labour budget represents the forecast of labour requirements to meet the demands of the company during the budget period. This budget must be linked with production budget and production cost budget. The method of preparing labour budget is like this. The standard direct labour hours of each grade of labour required for each unit of output and standard wage rate for each grade of labour are ascertained. Multiplication of units of finished goods to be produced by the labour cost per unit gives the direct labour cost. The indirect labour is normally a fixed amount, so should be easy to calculate in total for the period.





**Purposes:** The labour budget serves the following purposes :

- To estimate the labour cost of production.
- To determine the direct labour required in terms of labour hours and hence the number and grade of workers required to meet the production requirements.
- To provide the personnel department with personnel requirements so that it may plan recruitment activities.
- To provide data for determination of cash requirements for payment of wages.
- To provide data for managerial control of labour cost.

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### Production Overhead Budget

After budgeting of material and labour cost, next logical step is to prepare a budget for production overheads. The production overhead budget represents the forecast of all the production overhead (fixed, variable and semi-variable) to be incurred during the budget period. The fact that overheads include many dissimilar types of expenses creates considerable problems in:

- The allocation of production overheads to products manufactured, and
- Control of production overheads.

The production overhead budget involves the preparation of overhead budgets for each department of the factory as it is desirable to have estimates of manufacturing overheads prepared by those individuals who have the responsibility for incurring them. The budget expenses for each sub-period during the budget period should be indicated and the classification of expenses should be the same as used by the accounting department. The budgeted overhead costs of service departments are totalled and apportioned to production departments according to the services received by each such production department. The budgeted overhead costs of service departments are totalled and apportioned to production departments according to the services received by each such production department.

**Factors:** The factors to be considered in preparing this budget are as follows:

- The classification of all overhead costs into fixed and variable elements. In the case of semi-variable items, the degree of variability should be ascertained. The level of output at which fixed costs change also be determined.
- The level of activity likely to be achieved during the budget period like units of output, labour hours, etc.
- Policy of management regarding matters like overtime work, number of shifts to be worked, depreciation, replacement of hand labour by machines, etc.
- Individual items of cost incurred in the past.

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### Selling and Distribution Cost Budget

This is closely related to sales budget and represents the forecast of all costs incurred in selling and distributing the company's products during the budget period. As a general rule, the sales budget and the selling and distribution cost budgets are prepared simultaneously, since each has a definite impact on the other.

The sales manager is responsible for selling and distribution cost budget. He prepares this budget with the help of heads of sub-divisions of the sales department. Some companies prepare a separate advertising budget, particularly when spendings on advertising are quite heavy.

### Administration Cost Budget

This budget represents forecast of all administration expenses like directors' fees, managing

director's salary, office lighting, heating and air conditioning, etc. Most of these expenses are fixed, so should not be too difficult to forecast.

### Capital Expenditure Budget

This budget represents the expenditure on all fixed assets during the budget period. It includes such items as new buildings, machinery, land and intangible items like patents, etc.

**Special Features:** The capital expenditure budget has certain characteristic features which distinguish it from other functional budgets. These are :

(a) Capital expenditure budget deals with items not directly related to profit and loss account. Expenses related to capital expenditure such as depreciation, repairs and maintenance, etc. are, however, correlated to this budget and they are included in overhead budgets.

(b) Capital expenditure is frequently planned a number of year in advance, perhaps five to ten years, in which case it is broken down into convenient periods like years or months. As compared to this, other functional budgets are normally prepared for a shorter period, say, one year.

(c) This budget involves large amount of expenditure which needs top management approval. The capital expenditure budget is, therefore, subject to a strict management control.

### Cash Budget ✓

The cash budget is one of the most important and one of the last to be prepared. It is a detailed estimate of cash receipts from all sources and cash payments for all purposes and the resultant cash balances during the budget period. It makes certain that the business has sufficient cash available to meet its needs as and when these arise. It is a device for coordinating and controlling the financial side of the business to ensure solvency and provide a basis for planning and financing required to cover up any deficiency in cash. Cash budget thus plays an important role in the financial management of a business undertaking.

**Purposes:** The main purposes of cash budget are outlined below :

- (a) It ensures that sufficient cash is available when required.
- (b) It indicates cash excesses and shortages so that action may be taken in time to invest any excess cash or to borrow funds to meet any shortages.
- (c) It establishes a sound basis for credit.
- (d) It shows whether capital expenditure may be financed internally.
- (e) It establishes a sound basis for control of cash position.

**Preparation of Cash Budget.** There are three methods of preparing cash budget :

- (a) Receipts and Payments Method.
- (b) Adjusted Profit and Loss Method.
- (c) Balance Sheet Method.

(a) **Receipts and Payments Method.** This method is usually used for short term cash forecast and is much more detailed than the other two methods.

The cash budget begins with the opening balance of cash in hand and at bank. To this will be added the cash receipts from various sources and from this will be deducted all payments of cash, whether on capital or revenue account. The resultant figure is closing cash balance.

Cash receipts in most situations arise from cash sales, collections from debtors, interest on investments and loans, sale of capital assets and miscellaneous sources. In the case of credit sales, adjustment should be made for the time lag between the point of sale and realisation of cash.

Cash payments are made for raw material purchases, direct labour, out of pocket expenses, capital expenditure projects, dividends, etc. The period of credit appropriate to the payment concerned should be taken into account.

## Illustration 7.3

A company is expecting to have Rs. 25,000 cash in hand on 1st April 2006 and it requires you to prepare cash budget for the three months, April to June 2006. The following information is supplied to you.

	Sales Rs.	Purchase Rs.	Wages Rs.	Expenses Rs.
February	70,000	40,000	8,000	6,000
March	80,000	50,000	8,000	7,000
April	92,000	52,000	9,000	7,000
May	1,00,000	60,000	10,000	8,000
June	1,20,000	55,000	12,000	9,000

Other information :

- Period of credit allowed by suppliers is two months;
- 25% of sale is for cash and the period of credit allowed to customers for credit sale is one month;
- Delay in payment of wages and expenses one month;
- Income tax Rs. 25,000 is to be paid in June 2006.

Solution

## Cash Budget for three months ending June 2006

	April Rs.	May Rs.	June Rs.	Total Rs.
Opening balance	25,000	53,000	81,000	25,000
<b>Receipts :</b>				
Cash sales	23,000	25,000	30,000	78,000
Debtors	60,000	69,000	75,000	2,04,000
<b>Total (A)</b>	<b>1,08,000</b>	<b>1,47,000</b>	<b>1,86,000</b>	<b>3,07,000</b>
<b>Payments:</b>				
Creditors	40,000	50,000	52,000	1,42,000
Wages	8,000	9,000	10,000	27,000
Expenses	7,000	7,000	8,000	22,000
Income tax	—	—	25,000	25,000
<b>Total (B)</b>	<b>55,000</b>	<b>66,000</b>	<b>95,000</b>	<b>2,16,000</b>
<b>Closing balance (A - B)</b>	<b>53,000</b>	<b>81,000</b>	<b>91,000</b>	<b>91,000</b>

## (b) Adjusted Profit and Loss Method

This method is suitable for long term cash forecast. It is based on the view that it is the profit that is the source of cash in the business. The profit as per profit and loss accounts is converted into cash figure by preparing an Adjusted Profit and Loss Account. All those items of income and expenditure (like depreciation, provisions etc.) which do not involve an inflow or outflow of cash are adjusted in the forecasted profit figure to arrive at the figure of cash made available by profit.

Given in Fig 7.2 is a cash budget proforma under this method showing the various items that require adjustments in the profit figure for finding out the cash position at the end of a particular period.

Cash Budget for the period ....				
	Jan. Rs.	Feb. Rs.	March Rs.	Total Rs.,
Opening Balance of Cash				
<b>Additions :</b>				
Budgeted net profit				
Depreciation				
Provisions				
Sale of plant				
Issue of capital and debentures				
Reduction in debtors				
Reduction in stocks				
Accrued expenses				
Increase in liabilities				
Total additions				
Total Cash Available				
<b>Deductions :</b>				
Dividends				
Prepayments				
Capital profit				
Increase in stocks				
Increase in debtors				
Decrease in liabilities				
Total deductions				
Closing Balance of Cash				

Fig 7.2 Adjusted Profit and Loss Method of Cash Budget.

The adjusted profit and loss method is often termed as cash flow statement because it converts the profit and loss account into a cash forecast. The main difference between this method and the receipts and payment method is that whereas the former considers non-cash items for adjustment in the profit figure, the latter takes into account only cash transactions.

It will be appreciated that under the adjusted profit and loss method, the equation that  $\text{PROFIT} = \text{CASH}$  will hold good if there were no credit transactions, accruals, capital transactions, depreciation, stock fluctuations or appropriations of profit. But such a situation cannot exist in practice.

### c) Balance Sheet Method

This method is also used for forecasting cash requirements for long periods and is rather similar to adjusted profit and loss account method discussed above. Under this method, a budgeted balance sheet is prepared with all items of assets and liabilities excepting cash or bank balance. The two sides of the balance sheet are then totalled and the balancing figure is taken as cash. If the liabilities are more than assets, this reveals a balance of cash and/or bank, and if assets exceed liabilities, this reveals a bank overdraft.

Thus, under the adjusted profit and loss method, cash figure is computed by preparing a cash flow statement and the same figure is computed as a balancing figure under the balance sheet method.

## MASTER BUDGET

When all the functional budgets have been prepared, these are summarised into what is known as a master budget. Thus a master budget is a consolidated summary of all the functional budgets. According to C.I.M.A., London, "master budget is a summary budget incorporating its component functional budgets and which is finally approved, adopted and employed."

A master budget has two parts (i) *operating budget*, i.e., budgeted profit and loss account, and (ii) *financial budget*, i.e., budgeted balance sheet. Thus, a projected profit and loss account and a balance sheet together constitute a master budget.

The master budget is prepared by the budget director (or budget officer) and is presented to the budget committee for approval. If approved, it is submitted to the Board of Directors for final approval. The Board may make certain amendments/alterations before it is finally approved.

## ✓ FIXED AND FLEXIBLE BUDGETS

Based on level of activity or capacity utilisation, budgets are classified into fixed budget and flexible budget.

### Fixed Budget

A fixed budget is one which is prepared keeping in mind one level of output. It is defined as a budget "which is designed to remain unchanged irrespective of the level of activity attained." \*If actual output differs from budgeted level of output, variances will arise. Fixed budget is prepared on the assumption that output and sales can be estimated with a fair degree of accuracy. This means that in those situations where sales and output cannot be accurately estimated, fixed budget does not suit.

### Flexible Budget

In contrast to a fixed budget, a flexible budget is one "which is designed to change in relation to the level of activity attained."\* The underlying principle of flexible budget is that a budget is of little use unless cost and revenue are related to the actual volume of production. Flexible budgeting has been developed with the objective of changing the budget figures to correspond with the actual output achieved. Thus a budget might be prepared for various levels of activity, say, 70%, 80%, 90% and 100% capacity utilisation. Then whatever the level of output actually reached, it can be compared with an appropriate level.

Flexible budgets are prepared in those companies where it is extremely difficult to forecast output and sales with accuracy. Such a situation may arise in the following cases.

1. Where nature of business is such that sales are difficult to predict, e.g., demand for luxury goods is quite unpredictable.
2. Where sales are affected by weather conditions, e.g., soft drink industry, woollen garments, etc.
3. Where sales are affected by changes in fashion, e.g., readymade garments.
4. Where company frequently introduces new products.
5. Where large part of output is intended for export.

**Uses of Flexible Budgets** The figures in flexible budgets are adaptable to any given set of operating conditions. It is, therefore, more realistic than a fixed budget which is true only in one set of operating conditions.

\* CIMA, London terminology.

Flexible budgets are also useful from control point of view. Actual performance of an executive should be compared with what he should have achieved in the actual circumstances and not with what he should have achieved under quite different circumstances.

In brief, flexible budgets are more realistic, practical and useful. Fixed budgets, on the other hand, have a limited application and are suited only for items like fixed costs.

### Distinction between Fixed and Flexible Budgets

The main points of distinction between the two are as follows :

1. Fixed budget assumes static business conditions whereas flexible budget is based on the assumption of changing business conditions.
2. Fixed budget is prepared for only one level of activity but flexible budgets may be prepared for different capacity levels or for any level of activity.
3. Fixed budget figures are not changed when actual level of activity changes. But in flexible budgets, the figures are adjusted according to the actual level of activity attained.
4. When actual level of activity differs from budgeted level of activity, then in fixed budgets meaningful comparison between actual and budget figures is not possible. But in flexible budgets, such comparison are quite realistic.
5. Under changing business environments, fixed budgets have very limited use for control. But flexible budgets are very useful for cost control and performance evaluation under changing business environments.

### Preparation of Flexible Budgets

The preparation of flexible budgets necessitates the analysis of all costs into fixed and variable components. This analysis, of course, not peculiar to flexible budgeting, is more important in flexible budgeting than in fixed budgeting. This is so because in flexible budgeting, varying levels of output are considered and each class of overhead will be different for each level. In flexible budgeting, a series of budgets are prepared for every major level of activity so that whatever that actual level of output, it can be compared with appropriate budget or can be interpolated between budgets of the activity levels on either side. For example, budgets may be prepared for, say, 60%, 70%, 80%, 90% and 100% levels of activity. If the actual level of activity is 85%, then the budget allowance for 85% activity should be computed.

While computing fixed cost at various levels, it is to be noted that fixed cost in total amount remains unchanged at various levels of activity. However, fixed cost per unit decreases when level of output increases and vice versa, *i.e.*, fixed cost per unit increases when level of activity decreases.

Regarding the behaviour of variable costs, it is important to note that total variable cost increases in proportion to increase in the level of activity and vice versa. However, variable cost per unit does not change with the change in level of activity.

Semi-variable cost should be separated into fixed and variable components. Fixed component of the semi-variable cost will not change between levels but variable part of the semi-variable cost will change in the proportion of level of activity. This is explained in the following Illustrations.

### Illustration 7.4

Draw up a flexible budget for overhead expenses on the basis of the following data and determine the overhead rates at 70%, 80% and 90% plant capacity.



2. Power - Fixed = Rs 6,000, Variable = Rs. 14,000.

$$\text{Variable power at 70\%} = 14,000 \times \frac{70}{80} = \text{Rs. } 12,250$$

$$\text{at 90\%} = 14,000 \times \frac{90}{80} = \text{Rs. } 15,750$$

Similar calculation for repairs and maintenance

3. Direct labour hours at 70% =  $1,24,000 \times \frac{70}{80} = 1,08,500$

$$\text{at 90\%} = 1,24,000 \times \frac{90}{80} = 1,39,500$$

### Illustrations 7.5

Prepare a flexible budget for production at 80 per cent and 100 per cent activity on the basis of the following information :

Production at 50% capacity	5,000 units
Raw materials	Rs. 80 per unit
Direct labour	Rs. 50 per unit
Direct Expenses	Rs. 15 per unit
Factory Expenses	Rs. 50,000 (50% fixed)
Administration expenses	Rs. 60,000 (60% variable).

### Solution

#### Flexible Budget for the period.....

Cost	80% Capacity 8,000 units		100% Capacity 10,000 units	
	Per unit Rs.	Total Rs.	Per unit Rs.	Total Rs.
Raw materials	80.00	6,40,000	80.00	8,00,000
Direct labour	50.00	4,00,000	50.00	5,00,000
Direct expenses	15.00	1,20,000	15.00	1,50,000
<b>Prime cost</b>	<b>145.00</b>	<b>11,60,000</b>	<b>145.00</b>	<b>14,50,000</b>
Factory expenses :				
Variable	5.00	40,000	5.00	50,000
Fixed	3.125	25,000	2.50	25,000
<b>Works cost</b>	<b>153.125</b>	<b>12,25,000</b>	<b>152.50</b>	<b>15,25,000</b>
Administration expenses :				
Variable	7.206 <sup>00</sup>	48,000 57,600	3.806 <sup>00</sup>	36,000 36,000
Fixed	3.00	24,000	2.40	24,000
<b>Total cost</b>	<b>163.325</b>	<b>13,06,600</b>	<b>162.10</b>	<b>16,21,000</b>

In flexible budgets, the following important points should be noted :

1. Total fixed costs for each level remains unchanged.
2. Per unit fixed cost decreases when level of output increases and vice versa.
3. Total variable cost increases in proportion to increase in the level of output and.
4. Per unit variable cost remains unchanged at each level.



## REVISION OF BUDGETS

Sometimes the original budget prepared may have to be revised due to one or more of the following factors.

1. Changes in management policies and other internal factors like change in the capacity utilisation or addition to the production capacity, etc.
2. Unforeseen changes in uncontrollable or external factors like change in market prices of materials and other inputs, changes in fashions and consumer tastes, etc.
3. Errors committed in the preparation of original budget.

While preparing a revised budget, changes in all the factors requiring consideration should be taken into account. The method of preparing a revised budget may be similar to preparing a flexible budget so long as it pertains to changes in level of output or capacity utilisation.

### Illustration 7.6

A company produces two products and budgets at 60% level of activity for the year 2008. It gives the following information :

	<i>Product A</i>	<i>Product B</i>
Raw material cost per unit	Rs. 7.50	3.50
Direct wages per unit	Rs. 4.00	3.00
Variable overhead per unit	Rs. 2.00	1.50
Fixed overhead per unit	Rs. 6.00	4.50
Selling price per unit	Rs. 20.00	15.00
Production and sales (units)	4,000	6,000

The managing director is not satisfied with the budgeted results as stated above and wants to improve the performance. The managing director proposed that the sales quantities of products A and B could be increased by 50% provided the selling price was reduced by 5% in the case of product A and 10% in the case of product B. The price reduction should be made applicable to the entire quantity of sales of each of the two products.

You are required to present the overall profitability under the original budget and revised budget after taking the increased sales into consideration. (C.A., Inter)

## Solution

Original and Revised Budget  
for the year 2008

	Original Budget			Revised Budget		
	A	B	Total	A	B	Total
Sales (units)	4,000	6,000		6,000	9,000	
(A) Sales (value)	Rs. 80,000	Rs. 90,000	Rs. 1,70,000	Rs. 1,14,000	Rs. 1,21,500	Rs. 2,35,500
Costs :						
Raw material	30,000	21,000	51,000	45,000	31,000	76,500
Labour	16,000	18,000	34,000	24,000	27,000	51,000
Variable overhead	8,000	9,000	17,000	12,000	13,500	25,500
Fixed overhead	24,000	27,000	51,000	24,000	27,000	51,000
(A) Total cost	78,000	75,000	1,53,000	1,05,000	99,000	2,04,000
Profit (A + B)	2,000	15,000	17,000	9,000	22,500	31,500

Working Note : Revised sales figures are computed as follows :

	A	B
Selling price per unit	Rs. 20	15
Less : 5% and 10%	Rs. 1	1.50
	<u>Rs. 19</u>	<u>13.50</u>

Sales value  
 A = 6,000 units × Rs. 19 = Rs. 1,14,000  
 B = 9,000 units × Rs. 13.50 = Rs. 1,21,500

## PERFORMANCE BUDGETING

Performance budget is also a recent development which tries to overcome the limitations of traditional budgeting. In traditional system of budgeting as used in business enterprises and government departments, the main defect is that the control of performance in terms of physical units and the related costs is not achieved. This is because in such budgeting, money concept is given more importance. Performance budgeting is a relatively new concept which focuses on functions, programmes and activities.

In other words, in case of traditional budgeting, both input and output are mostly measured in monetary unit while performance budgeting lays emphasis on achievement of physical targets. Performance budgets are established in such a manner that each item of expenditure related to a specific responsibility centre is closely linked with the performance of that centre. Thus performance budgeting lays stress on activities and programmes. It tries to answer questions like—What is to be achieved?, How is it to be achieved?, When is it to be achieved?, etc.

The Government of India has now decided to introduce performance budgeting in all its departments in a phased manner. An example of performance budgeting in government system of accounting may be that generally expenditure is classified under the heads like pay and allowances, transport, repairs and maintenance, etc. In performance budgeting, the classification of expenditure may be setting up of a steel mill, construction of a railway station, computerisation of railway booking system, purchase of an aircraft carrier, etc. and other physical targets. When work on these activities is started, funds are obtained against these physical targets. Reports are then prepared for any under-spending or over-spending which are then analysed for corrective action to be taken.

Performance budgeting is sometimes called Programme Budgeting or Planning, Programme and Budget System (PPBS).

Steps in Performance Budgeting

1. **Establishment of responsibility centre.** First of all, responsibility centres are established. A responsibility centre is a segment of an organisation where an individual manager is held responsible for the performance of the segment.
2. **Establishment of performance targets.** For each responsibility centre, targets are set in terms of physical performance to be achieved. For example, for sales department, which is a responsibility centre, targets may be set in terms of number of units to be sold during the budget period. For production department, the target would then be the number of units to be produced.
3. **Estimating financial requirements.** In this step, the financial support needed to achieve the physical targets is estimated. In other words, the amount of expenditure involved under various heads to meet the physical performance is forecasted.
4. **Comparison of actual with budgeted performance.** This is a usual step in budgetary control to evaluate the actual performance.
5. **Reporting and action.** Variances from budgeted performance are analysed and reported for corrective action to be taken.

ZERO BASE BUDGETING (ZBB) ✓

ZBB is a recent development in the area of management control system and is steadily gaining importance in the business world. Before preparing a budget, a base is determined from which the budget process begins. Conventionally, current year's budget is taken as the base or the starting point for preparing the next year's budget. The figures in the base are changed as per the plan for the next year. This approach of preparing a budget is known as *conventional or incremental budgeting* since the budget process is concerned mainly with the increases or changes in operations that are likely to occur during the budget period. For example, sales of the current year's budget may be taken as the base and next year's budget for sales will be current year's sales plus an allowance for price increases and expected changes in sales volumes. The main drawback of this approach is that it perpetuates the past inefficiencies.

The method carries previous year inefficiencies to the present year

Zero base budgeting (ZBB) is an alternative to incremental budgeting. ZBB was introduced at Texas Instruments in USA in 1969 by Peter Phyr, who is known as the father of ZBB. It is not based on incremental approach and previous year's figures are not taken as the base for preparing next year's budget. Instead, the budget figures are developed with zero as the base, which means that a budget will be prepared as if it is being prepared for a new company for the first time.

Peter Phyr has defined ZBB as *"a planning and budgeting process which requires each manager to justify his entire budget request in detail from scratch (hence zero base). Each manager states why he should spend any money at all. This approach requires that all activities be identified as decision packages which will be evaluated by systematic analysis ranked in order of importance."*

According to C.I.M.A., London, ZBB is defined as *"a method of budgeting whereby all activities are revaluated each time a budget is set. Discrete levels of each activity are valued and a combination chosen to match funds available."*

In simple words, ZBB is a system whereby each budget item, regardless of whether it is new or existing, must be justified in its entirety each time a new budget is prepared. It is a formalised system of budgeting for the activities of an enterprise as if each activity were being performed for the first time, i.e., from zero base.

The novel part of the ZBB is the requirement that the budgeting process starts at zero with all expenditures to be completely justified. This contrasts with the usual approach in which a certain level of expenditure is allowed as a starting point and the budgeting process focuses on requests for incremental expenditures.

In ZBB, budget requests for appropriation are accepted on the basis of cost/benefit approach which ensures value for money. It questions long standing assumptions and systematically examines and perhaps abandons any unproductive projects. This means that those of the activities which are of no value find no place in the forthcoming budget even though these might have been an integral part of the past budget prepared under the traditional approach. ZBB in a way tries to locate those activities which are not essential.

### Main Features of Zero Base Budgeting (ZBB)

The main features of ZBB are as under :

1. All budget items, both old and newly proposed, are considered totally afresh.
2. Amount to be spent on each budget item is to be totally justified.
3. A detailed cost benefit analysis of each budget programme is undertaken and each programme has to compete for scarce resources.
4. Departmental objectives are linked to corporate goals.
5. The main stress is not on 'how much' a department will spend but on 'why' it needs to spend.
6. Managers at all levels participate in ZBB process and they have corresponding accountabilities.

ZBB is now-a-days widely used. In fact, when Jimmy Carter became the President of USA, he directed that all federal government agencies adopt ZBB. On a review of literature on the use of ZBB, it is found that in many organisations, ZBB has led to a considerable improvement in the budget process. But at the same time, in many organisations it has not proved successful.

**Advantages:** The main advantages of ZBB are :

1. In ZBB, all activities included in the budget are justified on cost benefit considerations which promote more effective allocation of resources.

2. ZBB discards the attitude of accepting the current position in favour of an attitude of questioning and challenging each item of budget.
3. In the course of ZBB process, inefficient and loss making operations are identified and may be removed.
4. It adds psychological push to employees to avoid wasteful expenditure.
5. It is an educational process and can promote a management team of talented and skillful people who tend to promptly respond to changes in the business environments.
6. Cost behaviour patterns are more closely examined.
7. Deliberately inflated budget requests get automatically weeded out in the ZBB process.

**Disadvantages:** Despite being a useful technique, ZBB suffers from the following disadvantages:

1. ZBB leads to an enormous increase in paper work and results in high cost of preparing budgets every year.
2. Managers may resist new ideas and changes. They may feel threatened by ZBB because all expenditures are questioned and need to be justified.
3. In ZBB, there is danger of emphasising short-term gains at the expense of long-term benefits.
4. It has a tendency to regard any activity not foreseen and sanctioned in the most recent ZBB as illegitimate.
5. For introducing ZBB, managers need to be given proper training and education regarding this new concept, its pros and cons and implementation.
6. It may not always be easy to properly rank decision packages and this may give rise to conflicts.

### PROBLEMS AND SOLUTIONS

#### Problem 7.1 (Flexible Budget)

Prepare flexible budget for the overheads of Danyanti Ltd. from the following data and ascertain the overhead rates based on direct labour hrs. at 50%, 60% and 70% capacity :

	At 60% capacity	100%
Variable overheads :		
Indirect material	Rs. 6,000	$6000 \times \frac{100}{60} = 10,000$
Indirect labour	Rs. 18,000	
Semi-variable overheads :		
Electricity (40% fixed, 60% variable)	Rs. 30,000	
Repair (80% fixed, 20% variable)	Rs. 3,000	
Fixed overheads :		
Depreciation	Rs. 16,500	
Insurance	Rs. 4,500	
Salaries	Rs. 15,000	

Estimated direct labour hours 1,86,000 hrs.

#### Solution

#### Flexible Budget for the period.....

	50%	60%	70%
	Rs.	Rs.	Rs.
Variable Overhead			
Indirect materials	5,000	6,000	7,000
Indirect labour	15,000	18,000	21,000
	$30,000 \times \frac{50}{100}$	$30,000 \times \frac{60}{100}$	

(Contd...)

# 8 | STANDARD COSTING AND VARIANCE ANALYSIS

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## Introduction

In general, costs may be divided into two broad categories :

(a) Historical costs; and (b) Pre-determined costs.

Historical cost means the actual or past cost and historical costing is a system in which actual costs incurred in the past are ascertained. Ascertainment of actual costs does not serve any useful purpose and has certain limitations.

Firstly, such costs are obtained too late and cannot be used for price quotations.

Secondly, historical costs do not serve the purpose of cost control because the cost has already been incurred before cost figures are available for managerial control.

Thirdly, historical costs do not provide any yardstick against which efficiency can be measured.

These limitations encouraged the development of a more satisfactory standard costing approach based on predetermined costs. Standard costing is not a method of costing like job order or process costing. It is a special technique to control costs and can be used in conjunction with any other system like job costing, process costing or marginal costing, etc.

Standard costing is one of the most important tools to control costs. In this technique, all costs are pre-determined, *i.e.*, costs are determined in advance of production. Such pre-determined costs are then compared with the actual costs. The difference between the actual costs and pre-determined costs, known as variances, are then analysed and investigated to know their reasons. Variances are reported to management for taking remedial steps so that actual costs adhere to pre-determined or standard costs.

## Meaning and Definition of Standard Cost

The word standard means '*a norm*' or a criterion. Standard cost is thus a criterion cost which may be used as a yardstick to measure the efficiency with which actual cost has been incurred. In other words, standard costs are pre-determined costs or target costs that should be incurred under efficient operating conditions.

According to Chartered Institute of Management Accountants (C.I.M.A.), London, "Standard cost is the pre-determined cost based on technical estimates for materials, labour and overhead for a selected period of time for a prescribed set of working conditions".

In the words of Brown and Howard, "the standard cost is a predetermined cost which determines what each product or service should cost under given circumstances". Thus standard costs are planned costs that should be attained under a given set of operating conditions. The main object of standard cost is to look forward and assess what the cost 'should be' as distinct from what the cost has been in the past.

### Meaning and Definition of Standard Costing

Standard costing is simply the name given to a technique whereby standard costs are computed and subsequently compared with the actual costs to find out the differences between the two. These differences (known as variances) are then analysed to know the causes thereof so as to provide a basis of control. The C.I.M.A. London has defined standard costing as "the preparation of standard costs and applying them to measure the variations from actual costs and analysing the courses of variations with a view to maintain maximum efficiency in production". Brown and Howard have defined it, "as a technique of cost accounting which compares the standard cost of each product or service with the actual costs, to determine the efficiency of the operations so that any remedial action may be taken immediately".

Steps. Standard costing system involves the following steps :

1. The setting of standard costs for different elements of cost, i.e., material, labour and overheads.
2. Ascertaining actual costs.
3. Comparing standard with actual costs to determine the differences between the two, known as 'variances'.
4. Analysing variances for ascertaining reasons thereof.
5. Reporting of these variances and analysis thereof to management for appropriate corrective action, where necessary.

### Applicability of Standard Costing

The application of standard costing requires certain conditions to be fulfilled. These are :

- (a) A sufficient volume of standard products or components should be produced.
- (b) Methods, operations and processes should be capable of being standardised.
- (c) A sufficient number of costs should be capable of being controlled.

Industries producing standardised products which are repetitive in nature, i.e., industries using process costing method, fulfil all the above conditions and thus the system can be used to the best advantage in such industries. Examples are fertilisers, cement, steel, sugar, etc.

In jobbing industries, it is not worthwhile to develop and employ a full system of standard costing. This is because in such industries each job undertaken may be different from another and setting standards for each job may prove difficult and expensive. In such industries, therefore, a partial system may be adopted in appropriate circumstances. For example, certain processes and operations performed may be of a repetitive nature and thus the principles of standard costing may be applied by setting standard for each such process or operation.

**Standard Costs and Estimated Costs – Comparison**

Both standard costs and estimated costs are predetermined costs computed in advance of production. But their objectives are normally different. The differences between the two are summarised as under :

<i>Basis</i>	<i>Standard cost</i>	<i>Estimated cost</i>
1. Nature.	Standard cost aims at what the cost SHOULD be.	Estimated cost is an assessment of what the cost WILL be.
2. Basis.	Standard costs are planned costs which are determined on a scientific basis after taking into account certain level of efficiency.	Estimated costs are based on average of the past figures, taking into consideration anticipated changes in future.
3. Relation to accounts.	In standard costing system, standard costs are usually incorporated into the accounts, from which variances of actual from standard are ascertained.	Estimated costs are used as statistical data for comparing with actual figures. Such costs are not entered in the books of accounts.
4. Use.	Standard costs are meant to be used for a concern operating on a standard costing system.	Estimated costs may be used in any concern operating on a historical cost system.
5. Purpose.	Standard costs serve the purpose of cost control.	Estimated costs do not serve the purpose of cost control. Such costs serve other purposes, like quoting selling price of new products, decision to buy or manufacture, etc.

**Standard Costing and Budgetary Control — Comparison**

Standard costing and budgetary control have the common objective of cost control by establishing predetermined targets. The actual performances are measured and compared with the predetermined targets for control purposes. Both the techniques are of importance in their respective fields and are complementary to each other.

**Points of Similarity**

There are certain basic principles which are common to both standard costing and budgetary control. These are :

1. The establishment of predetermined targets of performance.
2. The measurement of actual performance.
3. The comparison of actual performance with the predetermined targets.
4. The analysis of variances between the actual and the standard performance.
5. To take corrective measures, where necessary.

**Points of Difference**

In spite of so much similarity between standard costing and budgetary control, there are some important differences between the two, which are as follows :



Basis	Standard costing	Budgetary control
1. Scope.	Standard costs are developed mainly for the manufacturing function and sometimes also for marketing and administration functions.	Budgets are compiled for different functions of the business such as sales, purchases, production, cash, capital expenditure, research and development, etc.
2. Intensity.	Standard costing is intensive in application as it calls for detailed analysis of variances.	Budgetary control is extensive in nature and the intensity of analysis tends to be much less than that in standard costing.
3. Relation to accounts.	In standard costing, variances are usually revealed through accounts.	In budgetary control, variances are normally not revealed through accounts and control is exercised by statistically putting budgets and actuals side by side.
4. Usefulness.	Standard costs represent realistic yardsticks and, are therefore, more useful for controlling and reducing costs.	Budgets usually represent an upper limit on spending without considering the effectiveness of the expenditure in terms of output.
5. Basis.	Standard costs are usually established after considering such vital matters as production capacity, methods employed and other factors which require attention when determining an acceptable level of efficiency.	Budgets may be based on previous year's costs without any attention being paid to efficiency.
6. Projection.	Standard cost is a projection of cost accounts.	Budget is a projection of financial accounts.

**ADVANTAGES OF STANDARD COSTING**

The advantages to be derived from a system of standard costing will vary from one business to another. Much depends upon the degree of sophistication achieved and the acceptance by the management of utility of the system. Possible advantages are as follows :

- 1. Effective cost control.** The most important advantage of standard costing is that it facilitates the control of costs. Control is exercised by comparing actual performance with standards and taking action on the basis of variances so revealed.
- 2. Helps in planning.** Establishing standards is a very useful exercise in business planning which instils in management a habit of thinking in advance.
- 3. Provides incentives.** Standards provide incentives and motivation to work with greater effort. Schemes may be formulated to reward those who achieve or surpass the standard. This increases efficiency and productivity.
- 4. Fixing prices and formulating policies.** Standard costs are a valuable aid to management in determining prices and formulating production policies. For example, prices may be fixed by adding a standard margin of profit to standard cost. Similarly, standard costing furnishes cost estimates while planning production of new products.
- 5. Facilitates delegation of authority.** In order that responsibility for off-standard performance may be identified directly with the persons concerned, an organisation chart is prepared which shows delegated authority and establishes responsibility of each executive.
- 6. Facilitates coordination.** While establishing standards, the performance of different departments such as production, sales, purchases etc. is taken into account. Thus through the working of standard cost system, coordination of various functions is achieved.

7. **Eliminates wastes.** By fixing standard, certain waste such as material wastage, idle time, lost machine hours, etc. are reduced,

8. **Valuation of stocks.** Standard costing simplifies the valuation of stock because the stock is valued at standard cost. The difference between standard and actual cost is transferred to a variance account. This ensures uniform pricing of stocks in the form of raw materials, work-in-progress and finished goods.

9. **Management by exception.** Reporting of variances is based on the principle of management by exception. Only variances beyond a predetermined limit may be considered by the management for corrective action. This also reduces the cost of preparing reports.

10. **Economical and simple.** Standard costing is an economical and simple means of cost accounting and generally results in savings in the cost of costing system. It results in reduction in paper work in accounting and needs fewer number of forms and records. This leads to considerable saving in clerical labour.

### LIMITATIONS OF STANDARD COSTING

Standard costing system may suffer from certain disadvantages. This may be because of lack of education and communication and resultant misunderstanding on the part of managerial staff. Possible disadvantages are :

1. The system may not be appropriate to the business.
2. The staff may not be capable of operating the system.
3. A business may not be able to keep standards up-to-date. In other words, a business may not revise standards to keep pace with the frequent changes in manufacturing conditions. Firms may avoid revising standards as it is a costly affair.
4. Inaccurate and unreliable standards cause misleading results and thus may not enjoy the confidence of the users of the system.
5. Operation of the standard costing system is a costly affair and small firms cannot afford it.
6. Standard costing is expensive and unsuitable in job order industries which are manufacturing non-standardised products.

### VARIANCE ANALYSIS

**Cost Variance**—Difference between standard and actual is known as variance. Cost variance is the “*difference between a standard cost and the comparable actual cost incurred during a period.*” C.I.M.A., London.

Variance analysis is the process of analysing variances by sub-dividing the total variance in such a way that management can assign responsibility for any off standard performance. According to C.I.M.A., London, Terminology, variance analysis is “*the process of computing the amount of variance and isolating the causes of variance between actual and standard.*” An important aspect of variance analysis is the need to separate controllable from uncontrollable variances. A detailed analysis of controllable variances will help the management to identify the persons responsible for its occurrence so that corrective action can be taken.

### FAVOURABLE AND UNFAVORABLE VARIANCES

Where the actual cost is less than standard cost, it is known as ‘*favourable*’ or ‘*credit*’ variance. On the other hand, where the actual cost is more than standard cost, the difference is referred to as ‘*unfavourable*’, ‘*adverse*’ or ‘*debit*’ variance.

In other words, any variance that has a favourable effect on profit is favourable variance and any variance which has an adverse or unfavourable effect on profit is unfavourable variance.

Many students experience difficulty in ascertaining whether a variance is favourable or adverse. In the formulae given in this book, positive (+) variance will indicate favourable variance and negative (-) variance will indicate adverse variance. Favourable variances will be designated by (F) and Adverse by (A).

### CONTROLLABLE AND UNCONTROLLABLE VARIANCES

If a variance can be regarded as the responsibility of a particular person, with the result that his degree of efficiency can be reflected in its size, then it is said to be a controllable variance. For example, excess usage of material is usually the responsibility of the foreman concerned. However, if the excessive usage is due to material being defective, the responsibility may rest with the Inspection Department for non-detection of the defects.

If a variance arises due to certain factors beyond the control of management, it is known as uncontrollable variance. For example, change in the market prices of materials, general increase in the labour rates, increase in the rates of power or insurance premium, etc. are not within the control of the management of the company. Responsibility for uncontrollable variances cannot be assigned to any person or department.

The division of variances into controllable and uncontrollable is extremely important. The management should place more emphasis on controllable variance as it is these variances which require investigation and possibly corrective action. The uncontrollable variances, on the other hand, may be ignored. This follows the well known "principle of exception" whereby those matters which are going right are ignored and any deviations from efficient performance are investigated.

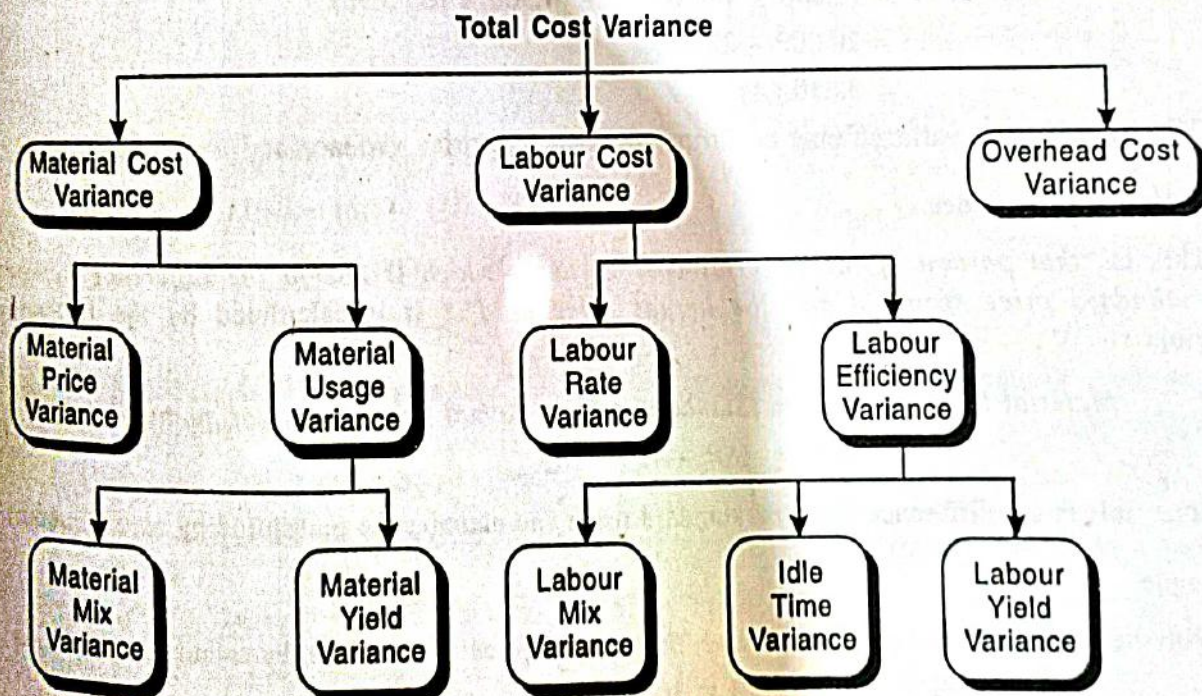


Fig. 8.1 Cost Variance Analysis

## Standard Costing & Variance Analysis

$$\text{Labour Yield Variance} = \left( \frac{\text{Actual output}}{\text{Actual hours}} - \frac{\text{St. output for actual hours}}{\text{St. rate per hour of work}} \right) \times \text{St. rate per hour of work}$$

$$\text{LYV} = (1,800 - 2,000) \times \frac{5,040}{2,000} = \text{Rs. } 504 \text{ (A)}$$

Check

$$\begin{aligned} \text{(i)} \quad & \text{LCV} = \text{LRV} + \text{LEV} \\ & \text{Rs. } 2,424 \text{ (A)} = \text{Rs. } 2,000 \text{ (A)} + \text{Rs. } 424 \text{ (A)} \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad & \text{LEV} = \text{LMV} + \text{LYV} \\ & \text{Rs. } 424 \text{ (A)} = \text{Rs. } 80 \text{ (F)} + \text{Rs. } 504 \text{ (A)} \end{aligned}$$

### SALES VARIANCES

Some companies calculate only cost variances relating to material, labour and overheads. These variances are, of course, invaluable, but to obtain full advantage of standard costing system, many companies also calculate sales variances. While cost variances are concerned with cost and their effect on budgeted profit due to favourable or adverse variances, the sales variances affect the budgeted profit due to changes in sales revenue *i.e.*, changes caused by either a variation in selling prices or sales quantities.

There are two distinct methods of calculating sales variances :

- (a) Turnover (or value) method
- (b) Margin (or profit) method

The following chart shows the various main and sub-variances of sales.

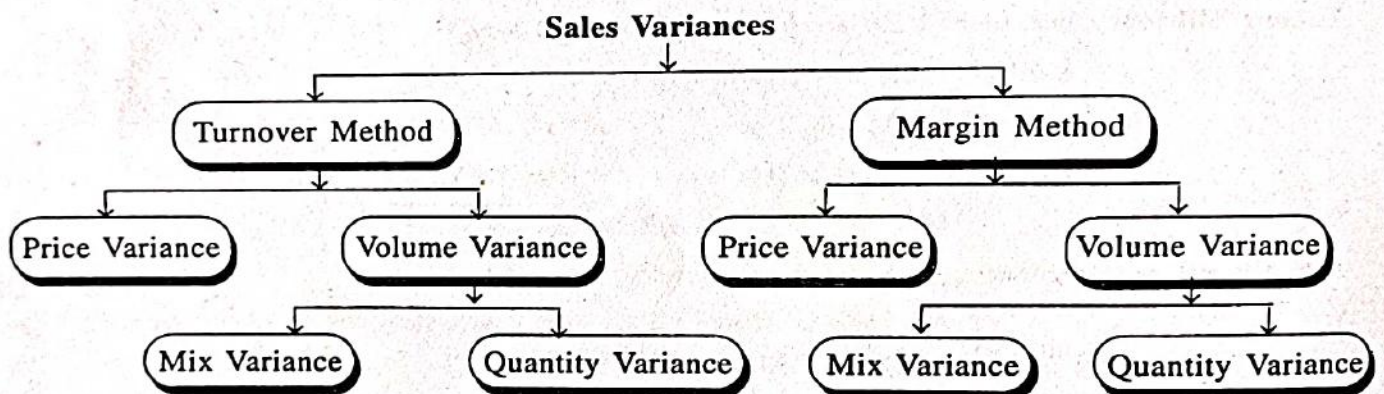


Fig. 8.2 Sales Variances

### TURNOVER METHOD OR SALES VALUE METHOD

Under this method, the following variances are calculated:

1. **Sales Value Variance.** This is the difference between the budgeted value and the actual value of sales effected during a period. This variance is calculated as follows :

$$\text{Sales Value Variance} = (\text{Actual sales}) - (\text{Budgeted sales})$$

Sales value variance results due to one or more of the following reasons :

- (a) Actual sales volume being more or less than the standard sales volume. This is expressed in sales volume variance.
- (b) Actual sales price received being higher or lower than the standard sales price. This is expressed in sales price variance.
- (c) A mix of products has been sold which is different from the standard mix. This is expressed in sales mix variance.

2. **Sales Volume Variance.** Volume refers to the number of physical units. Sales volume variance, therefore, represents that portion of the sales value variance which is due to the difference between the actual volume and standard volume of sales. The formula is :

$$\begin{aligned} \text{Sales Volume Variance} &= (\text{Actual quantity} - \text{Budgeted quantity}) \times \text{Standard price} \\ &= \text{Standard sales} - \text{Budgeted sales} \end{aligned}$$

**Reasons.** The usual reasons for this variance are : 1. Ineffective advertising and sales promotion. 2. Unexpected competition. 3. Lack of proper supervision and control of salesmen.

3. **Sales Price Variance.** Sales price variance is that portion of the sales value variance which is due to the difference between standard price specified and the actual price charged. The formula for its calculation is :

$$\begin{aligned} \text{Sales Price Variance} &= (\text{Actual price} - \text{Standard price}) \times \text{Actual quantity.} \\ &= \text{Actual Sales} - \text{Standard Sales} \end{aligned}$$

If actual price is less than the standard price, possible reason may be unforeseen competition. The price may also have to be reduced if a larger number of units have to be sold.

#### Illustration 8.8

A company marketing a product supplies the following information :

Standard sales			Actual sales		
Qty.	Price	Amt.	Qty.	Price	Amt.
Units	Rs.	Rs.	Units	Rs.	Rs.
10,000	3	30,000	5,000	3	15,000
			8,000	2.50	20,000

Calculate sales value variances.

(C.A. Inter)

#### Solution

$$\begin{aligned} \text{Sales Value Variance} &= \text{Actual sales} - \text{Standard sales} \\ &= [(5,000 \times 3) + (8,000 \times 2.50)] - (10,000 \times 3) \\ &= 35,000 - 30,000 = \text{Rs. 5,000 (F)} \end{aligned}$$

$$\begin{aligned} \text{Sales Volume Variance} &= (\text{AQ} - \text{BQ}) \times \text{SP} \\ &= (13,000 - 10,000) \times 3 = \text{Rs. 9,000 (F)} \end{aligned}$$

$$\begin{aligned} \text{Sales Price Variance} &= (\text{AP} - \text{SP}) \times \text{AQ} \\ &= (3 - 3) \times 5,000 = \text{Nil} \\ &= (2.50 - 3) \times 8,000 = \text{Rs. 4,000 (A)} \end{aligned}$$

$$\text{Total} = \text{Rs. 4,000 (A)}$$

## Standard Costing & Variance Analysis

### Check

$$\begin{aligned} \text{Sales Value Variance} &= \text{Volume Variance} + \text{Price Variance} \\ 5,000 \text{ (F)} &= 9,000 \text{ (F)} + 4,000 \text{ (A)} \end{aligned}$$

4. **Sales Mix Variance.** When a company is selling more than one type of product, a budget will be prepared to show the budgeted sales of each product. If actual sales of different products is not in the same proportion as budgeted, a sales mix variance will arise. Sales mix variance is "that portion of the sales volume variance which is due to the difference between the standard and the actual inter-relationship of the quantities of each product or product group of which sales are composed".

It is calculated by the following formula :

$$\begin{aligned} \text{Sales Mix Variance} &= (\text{Actual quantity} - \text{Revised standard quantity}) \times \text{Standard price} \\ \text{or} &= \text{Standard sales} - \text{Revised standard sales.} \end{aligned}$$

Revised standard quantity is calculated as under :

$$= \frac{\text{Total of actual quantities of all products}}{\text{Total of standard quantities of all products}} \times \text{Standard quantity of one product}$$

5. **Sales Quantity Variance.** The variance is the difference between the budgeted sales and revised standard sales. Its formula is :

$$\begin{aligned} \text{Sales Quantity Variance} &= \left( \text{Revised standard quantity} - \text{Budgeted quantity} \right) \times \text{Standard price} \\ &= \text{Revised standard sales} - \text{Budgeted sales.} \end{aligned}$$

Revised standard quantity means actual sales quantity in budgeted ratio of products. Where the budgeted quantity is more than the revised standard quantity, this variance is adverse and when the revised standard quantity is more than budgeted quantity, it is favourable.

### Check

$$\text{Sales Value Variance} = \text{Price Variance} + \text{Volume Variance.}$$

$$\text{Sales Volume Variance} = \text{Mix Variance} + \text{Quantity Variance.}$$

$$\therefore \text{Sales Value Variance} = \text{Price Variance} + \text{Mix Variance} + \text{Quantity Variance.}$$

### Illustration 8.9

The following data relates to two products X and Y.

Product	Budget			Actual		
	Qty.	Price	Value	Qty.	Price	Value
		Rs.	Rs.		Rs.	Rs.
X	1,000	5	5,000	1,200	6	7,200
Y	1,500	10	15,000	1,400	9	12,600
Total	2,500		20,000	2,600		19,800

Calculated sales variances by Turnover Method.