CHAPTER 27

Budgeting and Budgetary Control

Introduction

Budgeting has come to be accepted as an efficient method of short-term planning and control. It is employed, no doubt, in large business houses, but even the small businesses are using it at least in some informal manner. Through the budgets, a business wants to know clearly as to what it proposes to do during an accounting period or a part thereof. The technique of budgeting is an important application of Management Accounting. Probably, the greatest aid to good management that has ever been devised is the use of budgets and budgetary control. It is a versatile tool and has helped managers cope with many problems including inflation.

DEFINITION OF BUDGET

The Chartered Institute of Management Accountants, England, defines a 'budget' as under:

" A financial and/or quantitative statement, prepared and approved prior to define period of time, of the policy to be persued during that period for the purpose of attaining a given objective."

According to Brown and Howard of Management Accountant "a budget is a predetermined statement of managerial policy during the given period which provides a standard for comparison with the results actually achieved."

Essentials of a Budget

An analysis of the above said definitions reveal the following essentials of a budget:

(1) It is prepared for a definite future period.

(2) It is a statement prepared prior to a defined period of time.

(3) The Budget is monetary and / or quantitative statement of policy.

(4) The Budget is a predetermined statement and its purpose is to attain a given objective.

A budget, therefore, be taken as a document which is closely related to both the managerial as well as accounting functions of an organization.

Forecast Vs Budget

Forecast is mainly concerned with an assessment of probable future events. Budget is a planned result that an enterprise aims to attain. Forecasting precedes preparation of a budget as it is an important part of the budgeting process. It is said that the budgetary process is more a test of forecasting skill than anything else. A budget is both a mechanism for profit planning and technique of operating cost control. In order to establish a budget it is essential to forecast various important variables like sales, selling prices, availability of materials, prices of materials, wage rates etc.

Difference between Forecast and Budget

Both budgets and forecasts refer to the anticipated actions and events. But still there are wide differences between budgets and forecasts as given below:

Forecasts	*Budgets*
(1) Forecasts is mainly concerned with anticipated or probable events	(1) Budget is related to planned events
(2) Forecasts may cover for longer period or years	(2) Budget is planned or prepared for a shorter period
(3) Forecast is only a tentative estimate	(3) Budget is a target fixed for a period.
(4) Forecast results in planning	(4) Result of planning is budgeting
(5) The function of forecast ends with the forecast of likely events	(5) The process of budget starts where forecast ends and converts it into a budget
(6) Forecast usually covers a specific business function	(6) Budget is prepared for the business as a whole
(7) Forecasting does not act as a tool of controlling measurement.	(7) Purpose of budget is not merely a planning device but also a controlling tool.

BUDGETARY CONTROL

Budgetary Control is the process of establishment of budgets relating to various activities and comparing the budgeted figures with the actual performance for arriving at deviations, if any. Accordingly, there cannot be budgetary control without budgets. Budgetary Control is a system which uses budgets as a means of planning and controlling.

According to I.C.M.A. England Budgetary control is defined by Terminology as the establishment of budgets relating to the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with the budgeted results, either to secure by individual actions the objectives of that policy or to provide a basis for its revision.

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

The above definitions reveal the following essentials of budgetary control:

(1) Establishment of objectives for each function and section of the organization.

(2) Comparison of actual performance with budget.

(3) Ascertainment of the causes for such deviations of actual from the budgeted performance.

(4) Taking suitable corrective action from different available alternatives to achieve the desired objectives.

Objectives of Budgetary Control

Budgetary Control is planned to assist the management for policy formulation, planning, controlling and co-ordinating the general objectives of budgetary control and can be stated in the following ways:

(1) ***Planning:*** A budget is a plan of action. Budgeting ensures a detailed plan of action for a business over a period of time.

(2) ***Co-ordination:*** Budgetary control co-ordinates the various activities of the entity or organization and secure co-operation of all concerned towards the common goal.

(3) ***Control:*** Control is necessary to ensure that plans and objectives are being achieved. Control follows planning and co-ordination. No control performance is possible without predetermined standards. Thus, budgetary control makes control possible by continuous measures against predetermined targets. If there is any variation between the budgeted performance and the actual performance, the same is subject to analysis and corrective action.

Scope and Techniques of Standard Costing and Budgetary Control

Scope:

(1) Budgets are prepared for different functions of business such as production, sales etc. Actual results are compared with the budgets and control is exercised.

Standards on the other hand are complied by classifying, recording and allocation of the expenses to cost units. Actual costs are compared with standard costs.

(2) Budgets have a wide range of coverage of the entire organization. Each operation or process is divided into number of elements and standards are set for each such element.

(3) Budgetary control is concerned with origin of expenditure at functional levels.

Standard costing is concerned with the requirements of each element of cost.

(4) Budget is a projection of financial accounts whereas standard costing projects the cost accounts.

Technique:

(1) Budgetary control is exercised by putting budgets and actuals side by side.

Variances are not normally revealed in the accounts. Standard costing variances are revealed through accounts.

(2) Budgetary control system can be operated in parts. For example, Advertisement Budgets, Research and Development Budgets, etc. Standard costing is not put into operation in parts.

(3) Budgetary control of expenses is broad in nature whereas standard costing system is a far more technically improved system by means of which the variances are analysed in detail.

Requisites for Effective Budgetary Control

The following are the requisites for effective budgetary control :

(1) Clear cut objectives and goals should be well defined.

(2) The ultimate objective of realising maximum benefits should always be kept uppermost.

(3) There should be a budget manual which contains all details regarding plan and procedures for its execution. It should also specify the time table for budget preparation for approval, details about responsibility, cost centers etc.

(4) Budget committee should be set up for budget preparation and efficient execution of the plan.

(5) A budget should always be related to a specified time period.

(6) Support of top management is necessary in order to get the full support and co-operation of the system of budgetary control.

(7) To make budgetary control successful, there should be a proper delegation of authority and responsibility.

(8) Adequate accounting system is essential to make the budgeting successful.

(9) The employees should be properly educated about the benefits of budgeting system.

(10) The budgeting system should not cost more to operate than it is worth.

(11) Key factor or limiting factor, if any, should consider before preparation of budget.

(12) For budgetary control to be effective, proper periodic reporting system should be introduced.

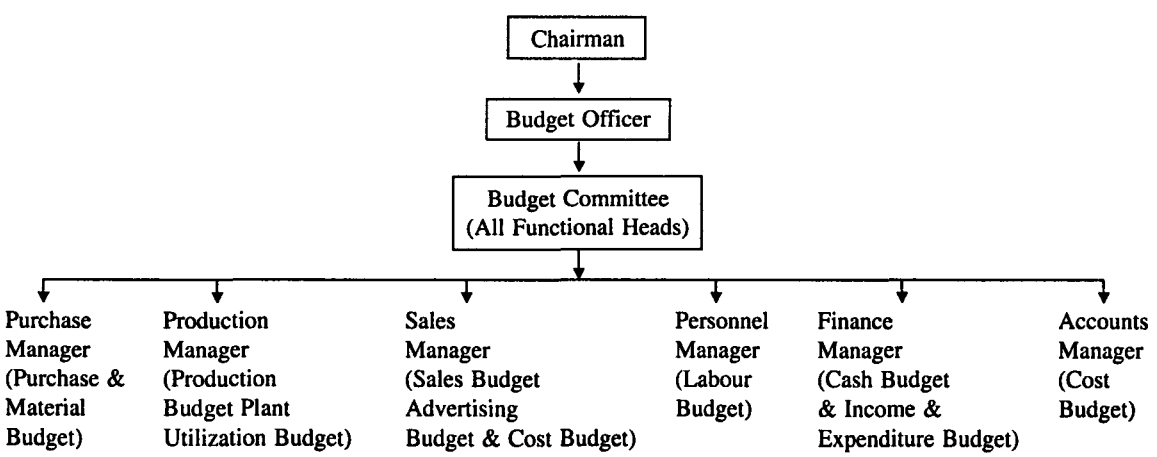
Organization for Budgetary Control

In order to introduce budgetary control system, the following are essential to be considered for a sound and efficient organization. The important aspects to be considered are :

1. Organisation Chart
2. Budget Center
3. Budget Officer
4. Budget Committee
5. Budget Manual
6. Budget Period
7. Key Factor

(1) Organisation Chart: For the purpose of effective budgetary control, it is imperative on the part of each entity to have definite "plan of organization." This plan of organization is embodied in the organization chart. The organization chart explaining clearly the position of each executive's authority and responsibility of the firm. All the functional heads are entrusted with the responsibility of ensuring proper implementation of their respective departmental budgets. An organization chart for budgetary control is given showing clearly the type of budgets to be prepared by the functional heads.

Organization Chart



From the above chart we can observe that the chairman of the company is the overall in charge of the functions of the Budgeted Committee. A Budget Officer is the convener of the budget committee, who helps in co-ordination. The Purchase Manager, Production Manager, Sales Manager, Personnel Manager, Finance Manager and Account Manager are made responsible to prepare their budgets.

(2) Budget Center: A Budget Center is defined by the terminology as "a section of the organization of an undertaking defined for the purpose of budgetary control." For effective budgetary control budget centre or departments should be established for each of which budget will be set with the help of the head of the department concerned.

(3) Budget Officer: Budget Officer is usually some senior member of the accounting staff who controls the budgetary process. He does not prepare the budget himself, but facilitates and co-ordinates the budgeting activity. He assists the individual departmental heads and the budget committee, and ensures that their decisions are communicated to the appropriate people.

(4) Budget Committee: Budget Committee comprising of the Managing Director, the Production Manager, Sales Manager and Accountant. The main objectives of this committee is to agree on all departmental budgets, normal standard hours and allocations. In small concerns, the Budget Officer may co-ordinate the work for preparation and implementation of budgets. In large-scale concern a budget committee is setup for preparation of budgets and execution of budgetary control.

(5) Budget Manual: A Budget Manual has been defined as "a document which set out the responsibilities of persons engaged in the routine of and the forms and records required for budgetary control." It contains all details regarding the plan and procedures for its execution. It also specifies the time table for budget preparation to approval, details about responsibility, cost centers, constitution and organization of budget committee, duties and responsibilities of budget officer.

(6) Budget Period: A budget is always related to specified time period. The budget period is the length of time for which a budget is prepared and employed. The period may depend upon the type of budget. There is no specific period as such. However, for the sake of convenience, the budget period may be fixed depending upon the following factors:

(a) Types of Business

(b) Types of Budget

(c) Nature of the demand of the product

(d) Length of trade cycle

(e) Economic factors

(f) Availability of accounting period

(g) Availability of finance

(h) Control operation

Key Factor

Key Factor is also called as "Limiting Factor" or Governing Factor. While preparing the budget, it is necessary to consider key factor for successful budgetary control. The influence of the Key Factor which dominates the business operations in order to ensure that the functional budgets are reasonably capable of fulfilment. The Key Factors include.

(1) Raw materials may be in short supply.

(2) Non-availability of skilled labours.

(3) Government restrictions.

(4) Limited sales due to insufficient sales promotion.

(5) Shortage of power.

(6) Underutilization of plant capacity.

(7) Shortage of efficient executives.

(8) Management policies regarding lack of capital.

(9) Insufficient research into new product development.

(10) Insufficiency due to shortage of space.

Advantages of Budgetary Control

The advantages of budgetary control may be summarized as follows :

(1) It facilitates reduction of cost.

(2) Budgetary control guides the management in planning and formulation of policies.

(3) Budgetary control facilitates effective co-ordination of activities of the various departments and functions by setting their limits and goals.

(4) It ensures maximization of profits through cost control and optimum utilization of resources.

(5) It evaluates for the continuous review of performance of different budget centers.

(6) It helps to the management efficient and economic production control.

(7) It facilitates corrective actions, whenever there is inefficiencies and weaknesses comparing actual performance with budget.

(8) It guides management in research and development.

(9) It ensures economy in working.

(10) It helps to adopt the principles of standard costing.

Limitations of Budgetary Control

Budgetary Control is an effective tool for management control. However, it has certain important limitations which are identified below:

(1) The budget plan is based on estimates and forecasting. Forecasting cannot be considered to be an exact science. If the budget plans are made on the basis of inaccurate forecasts then the budget progamme may not be accurate and ineffective.

(2) For reasons of uncertainty about future, and changing circumstances which may develop later on, budget may prove short or excess of actual requirements.

(3) Effective implementation of budgetary control depends upon willingness, co-operation and understanding among people reasonable for execution. Lack of co-operation leads to inefficient performance.

(4) The system does not substitute for management. It is mere like a management tool.

(5) Budgeting may be cumbersome and time consuming process.

Types of Budgets

As budgets serve different purposes, different types of budgets have been developed. The following are the different classification of budgets developed on the basis of time, functions, and flexibility or capacity.

(A) Classification on the basis of Time :

1. Long-Term Budgets
2. Short-Term Budgets
3. Current Budgets

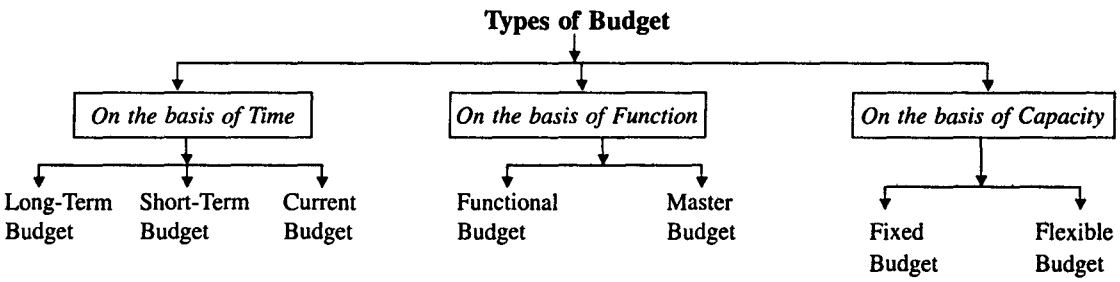
(B) Classification according to Functions :

1. Functional or Subsidiary Budgets
2. Master Budgets

(C) Classification on the basis of Capacity :

1. Fixed Budgets
2. Flexible Budgets

The following chart can explain this more:



(A) Classification on the Basis of Time

1. Long-Term Budgets: Long-term budgets are prepared for a longer period varies between five to ten years. It is usually developed by the top level management. These budgets summarise the general plan of operations and its expected consequences. Long-Term Budgets are prepared for important activities like composition of its capital expenditure, new product development and research, long-term finance etc.

2. Short-Term Budgets: These budgets are usually prepared for a period of one year. Sometimes they may be prepared for shorter period as for quarterly or half yearly. The scope of budgeting activity may vary considerably among different organization.

3. Current Budgets: Current budgets are prepared for the current operations of the business. The planning period of a budget generally in months or weeks. As per ICMA London, "Current budget is a budget which is established for use over a short period of time and related to current conditions."

(B) Classification on the Basis of Function

1. Functional Budget: The functional budget is one which relates to any of the functions of an organization. The number of functional budgets depend upon the size and nature of business. The following are the commonly used:

(1) Sales Budget

(2) Purchase Budget

(3) Production Budget

(4) Selling and Distribution Cost Budget

(5) Labour Cost Budget

(6) Cash Budget

(7) Capital Expenditure Budget

2. Master Budget: The Master Budget is a summary budget. This budget encompasses all the functional activities into one harmonious unit. The ICMA England defines a Master Budget as the summary budget incorporating its functional budgets, which is finally approved, adopted and employed.

(C) Classification on the Basis of Capacity

1. Fixed Budget: A fixed budget is designed to remain unchanged irrespective of the level of activity actually attained.

2. Flexible Budget: A flexible budget is a budget which is designed to change in accordance with the various level of activity actually attained. The flexible budget also called as Variable Budget or Sliding Scale Budget, takes both fixed, variable and semi fixed manufacturing costs into account.

Control Ratios

Ratios are used by the management to determine whether performance of its activities is going on as per estimates or not. If the ratio is 100 % or more, the performance is considered as favourable and if the ratio is less than 100% the performance is considered as unsatisfactory. The following are the ratios generally calculated for performance evaluation.

1. Capacity Ratio: This ratio indicates the extent to which budgeted hours of activity is actually utilised.

$$\text{Capacity Ratio} = \frac{\text{Actual Hours Worked Production}}{\text{Budget Hours}} \times 100$$

2. Activity Ratio: This ratio is used to measure the level of activity attained during the budget period.

$$\text{Activity Ratio} = \frac{\text{Standard Hours for Actual Production}}{\text{Budgeted Hours}} \times 100$$

3. Efficiency Ratio: This ratio shows the level of efficiency attained during the budget period

$$\text{Efficiency Ratio} = \frac{\text{Standard Hours for Actual Production}}{\text{Actual Hours Worked}} \times 100$$

4. Calendar Ratio: This ratio is used to measure the proportion of actual working days to budgeted working days in a budget period.

$$\text{Calendar Ratio} = \frac{\text{Number of Actual Working Days in a Period}}{\text{Budgeted Working Days for the Period}} \times 100$$

Illustration: 1

A company produces two articles A and B. Each unit takes 4 hours for A and 10 hours for B as production time respectively. The budgeted production for April, 2003 is 400 units of A and 800 units for B. The actual production at the end of the months was 320 units of A and 850 units of B. Actual hours spent on this production was 200. Find out the Capacity, Activity, and Efficiency Ratios for April 2003.

Also find out the Calendar Ratio if the actual working days during the month be 28 corresponding to 26 days in the budget.

Solution:

Standard Budgeted Hours :

A – 400 ÷ 4 = 100 hours
B – 800 ÷ 10 = 80 hours
180 hours

Standard Hours for Actual Production :

A – 320 ÷ 4 = 80 hours
B – 850 ÷ 10 = 85 hours
165 hours

(1) Capacity Ratio = $\frac{\text{Actual Hours worked}}{\text{Budgeted Hours}} \times 100$

= $\frac{200}{180} \times 100$

= 111.1%

(2) Activity Ratio = $\frac{\text{Standard Hours for Actual Production}}{\text{Budgeted Standard Hours}} \times 100$

= $\frac{165}{180} \times 100$

= 91.66%

(3) Efficiency Ratio = $\frac{\text{Standard Hours for Actual Production}}{\text{Actual Hours Worked}} \times 100$

= $\frac{165}{200} \times 100$

= 82.5%

(4) Calendar Ratio = $\frac{\text{Number of Actual Working Days in a Period}}{\text{Number of Working Days in a Budget Period}} \times 100$

= $\frac{28}{26} \times 100$

= 107.69%

Illustration: 2

From the given below information you are required to calculate Capacity Ratio, Activity Ratio and Efficiency Ratio:

Actual Hours worked	3,600
Budgeted Hours	4,000

Standard Hours for Actual Production 5,600 (Actual Production converted into Standard Hours)

Budgeted Standard Hours	6,000

(Budgeted Production Converted into Standard Hours)

Solution:

(1) Capacity Ratio $= \frac{\text{Actual Hours Worked}}{\text{Budgeted Hours}} \times 100$

$= \frac{3,600}{4,000} \times 100$

$= 90\%$

(2) Activity Ratio $= \frac{\text{Standard Hours for Actual Production}}{\text{Budgeted Standard Hours}} \times 100$

$= \frac{5,600}{6,000} \times 100$

$= 93.33\%$

(3) Efficiency Ratio $= \frac{\text{Standard Hours for Actual Production}}{\text{Actual Hours Worked}} \times 100$

$= \frac{5,600}{3,600} \times 100$

$= 155.55\%$

Illustration: 3

Product A takes 4 hours to make and B requires 8 hours. In a month 27 effective days of 8 hours a day. 500 units of A and 300 units, of Y were produced. The company employ 25 workers in the production department. The budgeted hours are 60,000 for the year. Calculate Capacity Ratio, Activity Ratio and Effective Ratio.

Solution:

Standard Hours for Actual Production

Product A : 500 x 4	=	2,000 hours
Product B : 300 x 8	=	2,400 hours
Std. Hours for Actual Production	=	4,400 hours

Budgeted Hours for the month $= \frac{60,000}{12}$

$= 5,000$ hours

Actual Hours Worked = 25 x 27 x 8 = 5,400 hours

(1) Capacity Ratio $= \frac{\text{Actual Hours Worked}}{\text{Budgeted Hours}} \times 100$

$= \frac{5,400}{5,000} \times 100$

$= 108\ \%$

(2) Activity Ratio $= \frac{\text{Standard Hour for Actual Production}}{\text{Budgeted Hours}} \times 100$

$= \frac{4,400}{5,000} \times 100$

$= 88\ \%$

(3) Efficiency Ratio $= \frac{\text{Standard Hours for Actual Production}}{\text{Actual Hours Worked}} \times 100$

$= \frac{4,400}{5,400} \times 100$

$= 81.48\ \%$

Illustration: 4

A Manufacturing company submits the following figures:

Budgeted Production 44 units
Actual Production 40 units
Standard Hours Per unit 8
Actual work Hours 500

You are required to calculate (a) Capacity Ratio (b) Activity Ratio and (c) Efficiency Ratio.

Solution:

Standard hours for actual period = Standard hours per unit x Actual Production
= 8 x 40 = 320 hours

Budgeted hours = Standard hour per unit x Budgeted Production
= 8 x 44 = 352 hours

(1) Capacity Ratio $= \frac{\text{Actual Hours worked}}{\text{Budgeted Hours}} \times 100$

$= \frac{500}{352} \times 100$

$= 142.04\%$

(2) Activity Ratio $= \frac{\text{Standard hours for actual production}}{\text{Budgeted Hours}} \times 100$

$= \frac{320}{352} \times 100$

$= 90.90\%$

(3) Efficiency Ratio $= \frac{\text{Standard hours for actual Production}}{\text{Actual Hours worked}} \times 100$

$= \frac{320}{500} \times 100$

$= 64\ \%$

Performance of Budgeting

Performance of Budget has been defined as a "budget based on functions, activities and projects."

Performance of Budgeting may be described as "the budgeting system in which input costs are related to the performance, i.e., end results."

According to National Institute of Bank Management, Performance Budgeting is, "the Process of analyzing, identifying, simplifying and crystallizing specific performance objectives of a job to be achieved over a period, in the framework of the organizational objectives, the purpose and objectives of the job."

From the above definitions, it is clear that budgetary performance involves the following:

(1) Establishment of well defined centers of responsibilities:

(2) Establishment for each responsibility centre — a programme of target performance is — physical units.

(3) Forecasting the amount of expenditure required to meet the physical plan laid down.

(4) Comparison of the actual performance with the budgets, i.e., evaluation of performance.

(5) Undertaking periodic review of the programme with a view to make modifications as required.

SOME IMPORTANT BUDGETS

Sales Budget

Sales Budget is one of the important functional budget. Sales estimate is the commencement of budgeting may be made in quantitative terms. Sales budget is primarily concerned with forecasting of what products will be sold in what quantities and at what prices during the budget period. Sales budget is prepared by the sales executives taking into account number of relevant and influencing factors such as :

(1) Analysis of past sales (Product wise, Territory wise, Quote wise).

(2) Key Factors.

(3) Market Conditions.

(4) Production Capacity.

(5) Government Restrictions.

(6) Competitor's Strength and Weakness.

(7) Advertisement, Publicity and Sales Promotion.

(8) Pricing Policy.

(9) Consumer Behaviour.

(10) Nature of Business.

(11) Types of Product.

(12) Company Objectives.

(13) Salesmen's Report.

(14) Marketing Research's Reports.

(15) Product Life Cycle.

Illustration: 5

Thomas Engineering Co. Ltd. Manufactures two articles X and Y. Its sales department has three divisions : West, South and East. Preliminary sales budgets for the year ending 31st December 2003, based on the assessments of the divisional executives:

Product X : West 40,000 units : South 1,00,000 units and East 20,000 units
Product Y : West 60,000 units : South 8,00,000 units and East Nil
Sales Price X Rs. 2 and Y Rs. 3 in all areas.

Arrangements are made for the extensive advertising of product X and Y and it is estimated that West division sales will increase by 20,000 units. Arrangements are also made to advertise and distribute product Y in the Eastern area in the second half of 2003 when sales are expected to be 1,00,000 units.

Since the estimated sales of the South division represented an unsatisfactory target, it is agreed to increase both the estimates by 10 %.

Prepare a sales budget for the year to 31st December 2003.

Solution:

Sales Budget for the year 2003

Division	*Product X*			*Product Y*			
	Qty.	*Price* Rs.	*Value* Rs.	*Qty.* Rs.	*Price* Rs.	*Value* Rs.	*Total* Rs.
West	60,000	2	1,20,000	80,000	3	2,40,000	3,60,000
South	1,10,000	2	2,20,000	88,000	3	2,64,000	4,84,000
East	20,000	2	40,000	1,00,000	3	3,00,000	3,40,000
Total	1,90,000		3,80,000	2,68,000		8,04,000	11,84,000

Illustration: 6

Two articles A and B are manufactured in a department. Sales for the year 2003 were planned as follows :

Product	*1st Quarter Units*	*2nd Quarter Units*	*3rd Quarter Units*	*4th Quarter Units*
Product A	5,000	6,000	6,500	7,500
Product B	2,500	2,250	2,000	1,900

Selling price were Rs. 10 per unit for A and Rs. 20 per unit for B respectively. Average sales return are 10 % of sales and the discounts and bad debts amount to 2 % of the total sales.

Prepare Sales Budget for the year 2003.

Solution:

Sales Budget for the Year 2003

Particulars	*1st Quarter*			*2nd Quarter*			*3rd Quarter*			*4th Quarter*			*Total*		
	Qty. Units	Price Rs.	Value Rs.	Qty. Units	Price Rs.	Value Rs.	Qty. Units	Price Rs.	Value Rs.	Qty. Units	Price Rs.	Value Rs.	Qty. Units	Price Rs.	Value Rs.
Product A	5,000	10	50,000	6,000	10	60,000	6,500	10	65,000	7,500	10	75,000	25,000	10	2,50,000
Product B	2,500	20	50,000	2,250	20	45,000	2,000	20	40,000	1,900	20	38,000	8,650	20	1,73,000
Total (1)	7,500	-	1,00,000	8,250	-	1,05,00	8,500	-	1,05,000	9,400	-	1,13,000	33,650	-	4,23,000
Less :															
Sales Return at 10% on Sales	-	-	10,000	-	-	10,500	-	-	10,500	-	-	11,300	-	-	42,300
Discount 'Bad Debts at 2% on Sales	-	-	2,000	-	-	2,100	-	-	2,100	-	-	2,260	-	-	8460
Total (2)	-	-	12,000	-	-	12,600	-	-	12,600	-	-	13,560	-	-	50,760
Net Sales (1) - (2)	-	-	88,000	-	-	92,400	-	-	92,400	-	-	92,400	-	-	3,72,240

Illustration: 7

Natarajan Ltd. has four sales territories A, B, C, D. Each salesman is expected to sell the following number of units during the First Quarter of 2003. Assume the Average Selling Price to be Rs. 10:

	Territory			
Month	*A Units*	*B Units*	*C Units*	*D Units*
April	500	750	1,250	1,750
May	1,000	900	1,400	2,000
June	1,250	1,000	1,500	2,250

Solution:

Sales Budget, First Quarter 2003

Territory	*April*			*May*			*June*			*Quter*	
	Qty. unit	*Price Rs.*	*Value Rs.*	*Qty. unit*	*Price Rs.*	*Value Rs.*	*Qty. unit*	*Price Rs.*	*Value Rs.*	*Qty. unit*	*Value Rs.*
A	500	10	5,000	1,000	10	10,000	1,250	10	12,500	2,750	27,500
B	750	10	7,500	900	10	9,000	1,000	10	10,000	2,650	26,500
C	1,250	10	12,500	1,400	10	14,000	1,500	10	15,000	4,150	41,500
D	1,750	10	17,500	2,000	10	20,000	2,250	10	22,500	6,000	60,000
Total	4,250		42,500	5,300		53,000	6,000		60,000	15,550	1,55,500

Production Budget

Production budget is usually prepared on the basis of sales budget. But it also takes into account the stock levels desired to be maintained. The estimated output of business firm during a budget period will be forecast in production budget. The production budget determines the level of activity of the produce business and facilities planning of production so as to maximum efficiency. The production budget is prepared by the chief executives of the production department. While preparing the production budget, the factors like estimated sales, availability of raw materials, plant capacity, availability of labour, budgeted stock requirements etc. are carefully considered.

Cost of Production Budget

After Preparation of production budget, this budget is prepared. Production Cost Budgets show the cost of the production determined in the production budget. Cost of Production Budget is grouped in to Material Cost Budget, Labour Cost Budget and Overhead Cost Budget. Because it breaks up the cost of each product into three main elements material, labour and overheads. Overheads may be further subdivided in to fixed, variable and semi-fixed overheads. Therefore separate budgets required for each item.

Illustration: 8

From the following particulars prepare a production budget of product P and Q of Nancy sales Corporation for the First Quarter of 2003:

Particulars	*Product P*	*Product Q*	*Product R*
Sales (in units) :			
January	20,000	15,000	5,000
February	15,000	20,000	5,000
March	25,000	25.000	5,000
Selling Price Per unit (Rs.)	5	10	20

Particulars	*Product P*	*Product Q*	*Product R*
Targets for I[st] Quarter 2003 :			
Sales Quantity increase	10 %	10 %	10 %
Sales Price increase	Nil	10 %	20 %
Stock Position I [st] Jan. 2003 :			
Stock position and Jan. 2003 Sales	50 %	50 %	50 %
Stock Position 31[st] Mar. 2003 :	10,000	20,000	5,000
Stock Position end Jan. & Feb.			
Percentage of subsequent month sales	50 %	50 %	50 %

Solution:

Production Budget (Units) of Product P and Q for the First Quarter of 2003

Product	*Particulars*	*April*	*May*	*June*	*Total*
P	Expected Sales	22,000	16,500	27,500	66,000
	Add : Closing stock	8,250	13,750	10,000	10,000
		30,250	30,250	37,500	76,000
	Less : Opening stock	11,000	8,250	13,750	10,000
	Budgeted Production (in units)	19,250	22,000	23,750	66,000
Q	Expected sales	16,500	22,000	27,500	66,000
	Add : Closing stock	11,000	13,750	20,000	20,000
		27,500	35,750	47,500	86,000
	Less : Opening stock	13,750	17,875	23,750	13,750
	Budgeted Production (to be Produced)	13,750	17,875	23,750	72,250

Illustration: 9

From the following particular, you are required to prepare production budget of

Mrs. V. G. P. Ltd. a manufacturing organization that has three products X, Y and Z

Product	*Estimated Stock at the beginning of the budget period*	*Estimated Stock at the end of the budget Period*	*Estimated Sales as Per sales budget*
X	5,000 units	6,400 units	21,600 units
Y	4,000 units	3,850 units	19,200 units
Z	6,000 units	7,800 units	23,100 units

Solution:

Particulars	*X (Units)*	*Y (Units)*	*Z (Units)*
Expected Sales during the period	21,600	19,200	23,100
Add : Closing stock at the end of budget period	6,400	3,850	7,800
	28,000	23,050	30,900
Less : Opening stock at the beginning of the budget period	5,000	4,000	6,000
Budgeted Production	23,000	19,050	24,900

Illustration: 10

Production cost of a factory for a year is as follows :

Direct wages Rs. 40,000
Direct materials Rs. 60,000
Production overhead fixed Rs. 20,000
Production overhead variable Rs. 30,000

During the forthcoming year, it is expected that

(a) The average rate for direct labour remuneration will be far from Rs. 3 per hour to Rs. 2 per hour
(b) Production efficiency will remain unchanged
(c) Direct labour hours will increase by $33\frac{1}{3}$ %

The purchase price per unit of direct materials and of the other materials and services which comprise overheads will remain unchanged.

Draw up a budget and a factory overhead rate, the overhead being absorbed on a direct wage basis.

Solution:

Cost of Production Budget

Particulars	*Rs.*	*Amount Rs.*
Direct Materials		60,000
Direct wages $\left[\text{Rs. } 40{,}000 \times \frac{2}{3} \times \frac{4}{3}\right]$		35,556
Prime Cost		95,556
Add : Production Overhead :		
Fixed	Rs. 20,000	
Variable	Rs. 30,000	50,000
Factory cost (or) Cost of production		1,45,556

Illustration: 11

Prepare a Production Budget for each month and Production Cost budget for the six months period ending 31st Dec. 2003 from the following data of product "X":

(1) The units to be sold for different months are as follows:

July, 2003	-	1,100
August	-	1,100
September	-	1,700
October	-	1,900
November	-	2,500
December 2003	-	2,300
January 2004	-	2,000

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

(3) Finished units equal to half the sales for the next month will be in stock at the end of each month (including June 2003).

(4) Budgeted production and production cost for the year ending 31st December 2003 are as follows :

Production (Units)	22,000
Direct Material Per unit	Rs. 10.00

Direct wages Per unit	Rs. 4.00	
Total factory overhead apportioned to product	88,000	*(ICWA; Inter)*

Solution:

(A) Production Budget (from July to December)

Particulars	*July*	*August*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total*
Estimated Sales	1,100	1,100	1,700	1,900	2,500	2,300	10,600
Add : Closing Stock of finished goods (half of next months sales)	550	850	950	1,250	1,150	1,000	1,000
	1,650	1,950	2,650	3,150	3,650	3,300	11,600
Less : Opening Stock of finished goods	550	550	850	950	1,250	1,150	550
Budgeted Production	1,100	1,400	1,800	2,200	2,400	2,150	11,050

Working Notes :

Estimated Production = Expected Sales + Desired Closing Stock – Estimated Opening Stock.

This is the closing stock June 2003 = 50 % of sale of July 2003.

(B) Production Cost Budget (from July to Dec.)

Particulars	*Amount (11,050 Units)*	*Amount (Per Unit)*
Direct Material cost (at Rs. 10 per unit)	1,10,500	10
Direct Wages (at Rs. 4 per unit)	44,200	4
Factory Overhead $\frac{88,000}{22,000}$ x 11,050	44,200	4
Total Cost of Production	1,98,900	18

Assumed to be variable. If it is fixed, 50 % of Rs. 88,000 (Rs. 44,000) is to be charged.

Material Purchase Budget

The different level of material stock are based on planned out. Once the production budget is prepared, it is necessary to considered the requirement of materials to carryout the production activities. Material Purchase Budget is concerned with purchase and requirement of direct materials to be made during the budget period. While preparing the materials purchase budget, the following factors to be considered carefully:

(1) Estimated sales and production.

(2) Requirement of materials during budget period.

(3) Expected changes in the prices of raw materials.

(4) Different stock levels, EOQ etc.

(5) Availability of raw materials, i.e., seasonal or otherwise.

(6) Availability of financial resources.

(7) Price trend in the market.

(8) Company's stock policy etc.

Illustration: 12

Draw up a material purchase budget from the following information :

Estimated sales of a product is 30,000 units. Two kinds of raw materials A and B are required for manufacturing the product. Each unit of the product requires 3 units of A and 4 units of B. The estimated opening balance in the beginning of the next year : finished goods 5,000 units; A, 6,000 units; B, 10,000 units. The desirable closing balance at the end of the next year : finished product, 8,000 units; A, 10,000 units; B 12,000 units.

Solution:

Estimated Production	=	Expected Sales + Desired Closing Stock of Finished Goods
		– Estimated Opening Stock of Finished Goods
	=	30,000 + 8,000 – 5,000
	=	33,000 units

Material Purchase Budget for the year

Particulars	*Material A Units*	*Material B Units*
Material Required to meet Production Target Material A – 33,000 x 3 Material B – 33,000 x 4	99,000	1,32,000
Add : Desired closing stock at the end of next year	10,000	12,000
	1,09,000	1,44,000
Less : Expected stock at the commencement of next year (opening balance)	6,000	10,000
Quantity of Materials to be purchased	1,03,000	1,34,000

Cash Budget

This budget represent the anticipated receipts and payment of cash during the budget period. The cash budget also called as Functional Budget. Cash budget is the most important of all the functional budget because, cash is required for the purpose to meeting its current cash obligations. If at any time, a concern fails to meet its obligations, it will be technically insolvent. Therefore, this budget is prepared on the basis of detailed cash receipts and cash payments. The estimated Cash Receipts include:

(1) Cash Sales

(2) Credit Sales

(3) Collection from Sundry Debtors

(4) Bills Receivable

(5) Interest Received

(6) Income from Sale of Investment

(7) Commission Received

(8) Dividend Received

(9) Income from Non-Trading Operations etc.

The estimated Cash Payments include the following :

(1) Cash Purchase

(2) Payment to Creditors

(3) Payment of Wages

(4) Payments relate to Production Expenses

(5) Payments relate to Office and Administrative Expenses

(6) Payments relate to Selling and Distribution Expenses

(7) Any other payments relate to Revenue and Capital Expenditure

(8) Income Tax Payable, Dividend Payable etc.

Illustration: 13

A company is expecting to have Rs. 25,000 cash in hand on Ist April 2003 and it requires you to prepare an estimate of cash position in respect of three months from April to June 2003, from the information given below :

	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

Additional Information :

(a) Period of credit allowed by suppliers — two months.
(b) 25 % of sale is for cash and the period of credit allowed to customer for credit sale one month.
(c) Delay in payment of wages and expenses one month.
(d) Income Tax Rs. 25,000 is to be paid in June 2003.

Solution:

Cash Budget

Particulars	*April* Rs.	*May* Rs.	*June* Rs.	*Total* Rs.
Opening balance of cash	25,000	53,000	81,000	1,59,000
Cash Respects :				
Cash Sales	23,000	25,000	30,000	78,000
Debtors	60,000	69,000	75,000	2,04,000
Total Cash Receipts – (1)	1,08,000	1,47,000	1,86,000	4,41,000
Cash Payments :				
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
Total Payment – (2)	55,000	66,000	95,000	2,16,000
Closing Balance of Cash (1-2)	53,000	81,000	91,000	2,25,000

Illustration: 14

Prasad & Co. wishes to prepare cash budget from January. Prepare a cash budget for the first six months from the following estimated revenue and expenses:

Month	*Total Sales Rs.*	*Materials Rs.*	*Wages Rs.*	*Production Overheads Rs.*	*Selling and Distribution Overheads Rs.*
January	10,000	10,000	2,000	1,600	400
February	11,000	7,000	2,200	1,650	450
March	14,000	7,000	2,300	1,700	450
April	18,000	11,000	2,300	1,750	500
May	15,000	10,000	2,000	1,600	450
June	20,000	12,500	2,500	1,800	600

Additional Information

1. Cash balance on Ist January was Rs. 5,000. A new machinery is to be installed at Rs. 10,000 on credit, to be repaid by two equal installments in March and April.
2. Sales commission @ 5 % on total sales is to be paid within a month of following actual sales.
3. Rs. 5,000 being the amount of 2nd call may be received in March. Share Premium amounting to Rs. 1,000 is also obtainable with the 2nd call.
4. Period of credit allowed by suppliers – 2 months.
5. Period of credit allowed to customers – 1 month.
6. Delay in payment of overheads – 1 month.
7. Delay in payment of wages – ½ month.
8. Assume cash sales to be 50 % of total sales.

Solution:

Cash Budget from January to June

Particulars	*January Rs.*	*February Rs.*	*March Rs.*	*April Rs.*	*May Rs.*	*June Rs.*
Opening Balance	5,000	9,000	14,900	13,500	12,350	16,550
Estimated Cash Receipts:						
Cash Sales	5,000	5,500	7,000	9,000	7,500	10,000
Credit Sales	–	5,000	5,500	7,000	9,000	7,500
Second Call	–	–	5,000	–	–	–
Share Premium	–		1,000	–	–	–
Total Cash Receipts (A)	10,000	19,500	33,400	29,500	28,850	34,050
Estimated Cash Payments:						
Materials	–	–	10,000	7,000	7,000	11,000
Wages	1,000	2,100	2,250	2,300	2,150	2,250
Production Overheads	–	1,600	1,650	1,700	1,750	1,600

Selling & Distribution Overheads	–	400	450	450	500	450
Sales Commission	–	500	550	700	900	750
Purchase of Machinery	–	–	5,000	5,000	–	–
Total Cash Payment (B)	1,000	4,600	19,900	17,150	12,300	16,050
Closing Balance (A – B)	9,000	14,900	13,500	12,350	16,550	18,000

Illustration: 15

From the following data, forecast the cash position at the end of April, May and June 2003.

Month	*Sales* Rs.	*Purchases* Rs.	*Wages* Rs.	*Miscellaneous* Rs.
February	60,000	42,000	5,000	3,500
March	65,000	50,000	6,000	4,000
April	40,000	52,000	4,000	3,000
May	58,000	53,000	5,000	6,000
June	44,000	40,000	4,000	3,000

Additional Information

1. *Sales :* 10 % realized in the month of sales ; balance realised equally in two subsequent months.
2. *Purchases:* These are paid in the month following the month of supply.
3. *Wages :* 10 % Paid in arrears following month.
4. *Miscellaneous expenses :* Paid a month in arrears.
5. *Rent :* Rs. 500 Per month paid Quarterly in advance due in April.
6. *Income Tax :* First installment of advance tax Rs. 15,000 due on or before 15th June.
7. *Income from Investment :* Rs. 3,000 received quarterly in April, July etc.
8. *Cash in hand :* Rs. 3,000 on Ist April 2003.

Solution:

Cash Budget for the month of April, May and June

Particulars	*April* Rs.	*May* Rs.	*June* Rs.
Opening Balance of Cash	3,000	7,550	700
Add : Cash Receipts :			
Cash Sales	4,000	5,800	4,400
Receipts from Debtors (Credit Sales)			
Collection in Ist month	29,250	18,000	19,800
Collection in 2nd month	27,000	29,250	18,000
Income from Investment	3,000	–	–
Total Cash Receipts (1)	66,250	60,600	42,900
Less : Cash Payments :			
Creditors for Purchases	50,000	52,000	53,000

Wages; Current (90%)	3,600	4,500	3,600
Arrears (10%)	600	400	500
Rent	500	–	–
Miscellaneous Expenses	4,000	3,000	6,000
Income Tax	–	–	15,000
Total Payments (2)	58,700	59,900	78,100
Closing Balance of Cash (1- 2)	7,550	700	(-)35,200

Working Notes

(1) Out of total sales, 10 % are cash sales. Balance 90 % are credit sales. In any given month 50 % of credit sale of the previous two months are collected (See W.N.)

(2) In any given month, 90 % of the wages of the same month and 10 % of previous month's wages are paid.

(3) Working Notes for collections of cash from Debtors and Sales

Particulars	*February* Rs.	*March* Rs.	*April* Rs.	*May* Rs.	*June* Rs.
Total Sales	60,000	65,000	40,000	58,000	44,000
Less : Cash Sales (10%)	6,000	6,500	4,000	5,800	4,400
Credit Sales	54,000	58,500	36,000	52,200	39,600
Collection in 1st month after Credit Sales	-	27,000	29,250	18,000	19,800
Collection in 2nd month after Credit Sales	-	-	27,000	29,250	18,000
Total Credit			56,250	47,250	37,800

Master Budget

When the functional budgets have been completed, the budget committee will prepare a Master Budget for the target of the concern. Accordingly a budget which is prepared incorporating the summaries of all functional budgets. It comprises of budgeted profit and loss account, budgeted balance sheet, budgeted production, sales and costs. The ICMA England defines a Master Budget as "the summary budget incorporating its functional budgets, which is finally approved, adopted and employed." The Master Budget represents the activities of a business during a profit plan. This budget is also helpful in co-ordinating activities of various functional departments.

Illustration: 16

Pushpack & Co., a glass manufacturing company requires you to calculate and present the budget for the next year from the following information :

Toughened Glass	Rs. 2,00,000
Bent Toughened Glass	Rs. 3,00,000
Direct Material Cost	60% of Sales
Direct Wages	10 workers @ Rs. 100 per month

Factory Overheads

Indirect Labour:	
Work Manager	Rs. 300 Per month
Foreman	Rs. 200 Per month
Stores and Spares	2% on Sales
Depreciation on Machinery	Rs. 6,000
Light and Power	Rs. 2,000
Repairs and Maintenance	Rs. 4,000
Other Sundries	10% on direct Wages

Administration, Selling and Distribution expenses Rs. 7,000 per year.

Solution:

Master Budget for the year ending.....

Particulars			*Amount*	*Amount*
Sales (as per Sales Budget):				
Toughened glass				2,00,000
Bent Toughened glass				3,00,000
				5,00,000
Less : Cost of Production:				
(as per cost of Production Budget)				
Direct Materials			3,00,000	
Direct Wages			12,000	
Prime Cost			3,12,000	
Add : Factory Overhead:				
Variable:				
Stores and Spares	Rs.	10,000		
Light and Power	Rs.	2,000		
Repairs and Maintance	Rs.	4,000	16,000	
Fixed:				
Work Manager's Salary	Rs.	3,600		
Foremen Salary	Rs.	2,400		
Depreciation	Rs.	6,000		
Sundries	Rs.	1,200	13,200	3,41,200
Work's Cost			3,41,200	
Gross Profit				1,58,800
Less: Administration, Selling & Distribution Overheads				7,000
Net Profit				1,51,800

Fixed Budget

A budget is drawn for a particular level of activity is called fixed budget. According to ICWA London "Fixed budget is a budget which is designed to remain unchanged irrespective of the level of activity actually attained." Fixed budget is usually prepared before the beginning of the financial year. This type of budget is not going to highlight the cost variances due to the difference in the levels of activity. Fixed Budgets are suitable under static conditions.

Flexible Budget

Flexible Budget is also called Variable or Sliding Scale budget, "takes both the fixed and manufacturing costs into account. Flexible budget is the opposite of static budget showing the expected cost at a single level of activity. According to ICMA, England defined Flexible Budget is a budget which is designed to change in accordance with the level of activity actually attained."

According to the principles that guide the preparation of the flexible budget a series of fixed budgets are drawn for different levels of activity. A flexible budget often shows the budgeted expenses against each item of cost corresponding to the different levels of activity. This budget has come into use for solving the problems caused by the application of the fixed budget.

Advantages of Flexible Budget

(1) In flexible budget, all possible volume of output or level of activity can be covered.

(2) Overhead costs are analysed into fixed variable and semi-variable costs.

(3) Expenditure can be forecasted at different levels of activity.

(4) It facilitates at all times related factor can be compared, which are essential for intelligent decision making.

(5) A flexible budget can be prepared with standard costing or without standard costing depending upon What the Company opts for.

(6) Flexible budget facilitates ascertainment of costs at different levels of activity, price fixation, placing tenders and Quotations.

(7) It helps in assessing the performance of all departmental heads as the same can be judged by terms of the level of activity attained by the business.

Distinction between Fixed Budget and Flexible Budget

Fixed Budget	*Flexible Budget*
1. It does not change with the volume of activity.	1. It can be recast on the basis of volume of cost.
2. All costs are related to one level of activity only.	2. Costs are analysed by behaviour and variable costs are allowed as per activity attained.
3. If budget and actual activity levels vary, cost ascertainment does not provide a correct picture.	3. Flexible budgeting helps in fixation of selling price at different levels of activity.
4. Ascertainment of costs is not possible in fixed cost.	4. Costs can be easily ascertained at different levels of activity.
5. It has a limited application for cost control.	5. It has more application and can be used as a tool for effective cost control.
6. It is rigid budget and drawn on the assumption that conditions would remain constant.	6. It is designed to change according to changed conditions.
7. Comparison of actual and budgeted performance cannot be done correctly because the volume of production differs.	7. Comparisons are realistic according to the change in the level of activity.
8. Costs are not classified according to their variability, i.e., fixed, variable and semi-variable.	8. Costs are classified according to the nature of their variability.

Method of Preparing Flexible Budget

The following methods are used in preparing a flexible budget:

(1) Multi-Activity Method.

(2) Ratio Method.

(3) Charting Method.

(1) Multi-Activity Method: This method involves preparing a budget in response to different level of activity. The different level of activity or capacity levels are shown in Horizontal Columns, and the budgeted figures against such levels are placed in the Vertical Columns. The expenses involved in production as per budget are grouped as fixed, variable and semi variable.

(2) Ratio Method: According to this method, the budget is prepared first showing the expected normal level of activity and the estimated variable cost per unit at the side expected level of activity in addition to the fixed cost as estimated. Therefore, the expenses as per budget, allowed for a particular level of activity attained, will be calculated on the basis of the following formula : Budgeted fixed cost + (Variable cost per unit of activity x Actual unit of activity)

(3) Charting Method: Under this method total expenses required for any level of activity, are estimated having classified into three categories, viz., Variable, Semi Variable and Fixed. These figures are plotted on a graph. The expenses are plotted on the Y-axis and the level of activity are plotted on X-axis. The graph will thus, help in ascertaining the quantum of budgeted expenses corresponding to the level of activity attained with the help of this chart.

Zero Base Budgeting (ZBB)

Zero Base Budgeting is a new technique of budgeting. It is designed to meet the needs of the management in order to ensure the operational efficiency and effective utilization of the allocated resources of a concern. This technique was originally developed by Peter A. Phyhrr, Manager of Taxas Instrument during 1969. This concept is widely used in USA for controlling their state expenditure when Mr. Jimmy Carter was the president of the USA. At present the technique has for its global recognition for many countries have implemented in real terms.

According to Peter A. Phyhrr ZBB is defined as an "Operative Planning and Budgeting Process" which requires each Manager to justify his entire budget in detail from Scratch (hence zero base) and shifts the burden of proof to each Manager to justify why we should spend any money at all."

In zero-base budgeting, a manager at all levels have to justify the importance of activity and to allocate the resources on priority basis.

Important Aspects of ZBB

Zero Base Budgeting involves the following important aspects :

(1) It emphasises on all requisites of budgets.

(2) Evaluation on the basis of decision packages and systematic analysis, i.e., in view of cost benefit analysis.

(3) Planning the activities, promotes operationai efficiency and monitors the performance to achieve the objectives.

Steps Involved in ZBB

The following are the steps involved in Zero Base Budgeting :

(1) No Previous year performance of inefficiencies are to be taken as adjustments in subsequent year.

(2) Identification of activities in decision packages.

(3) Determination of budgeting objectives to be attained.

(4) Extent to which Zero Base Budgeting is to be applied.

(5) Evaluation of current and proposed expenditure and placing them in order of priority.

(6) Assignment of task and allotment of sources on the basis of cost benefit comparison.

(7) Review process of each activity examined afresh.

(8) Weightage should be given for alternative course of actions.

Advantages of ZBB

(1) Utilization of resources at a maximum level.

(2) It serves as a tool of management in formulating production planning.

(3) It facilitates effective cost control.

(4) It helps to identify the uneconomical activities.

(5) It ensures the proper allocation of scarce resources on priority basis.

(6) It helps to measure the operational inefficiencies and to take the corrective actions.

(7) It ensures the principles of Management by Objectives.

(8) It facilitates Co-operation and Co-ordination among all levels of management.

(9) It ensures each activity is thoroughly examined on the basis of cost benefit analysis.

Illustration: 17

The expenses budgeted for production of 10,000 units in a factory are furnished below :

	Per unit *Rs.*
Materials	70
Labour	25
Variable factory overheads	20
Fixed factory overhead (Rs. 1,00,000)	10
Variable expenses (Direct)	5
Selling expenses (10 % Fixed)	13
Distribution expenses (20 % Fixed)	7
Administrative expenses (Rs. 50,000)	5
Total cost of sale per unit	155

You are required to prepare a budget for the production of 8,000 units.

Solution:

Flexible Budget

Particulars	*Output 10,000 units*		*Output 8,000 units*	
	Per unit	*Amount*	*Per unit*	*Amount*
Variable Expenses :				
Material cost	70	7,00,000	70	5,60,000
Labour cost	25	2,50,000	25	2,00,000
Direct expenses (variable)	5	50,000	5	40,000
Prime cost	100	10,00,000	100	8,00,000
Add : Factory overheads :				
Variable overheads	20	2,00,000	20	1,60,000
Fixed overheads	10	1,00,000	12.50	1,00,000
Works cost	130	13,00,000	132.50	10,60,000
Add : Administrative expenses				
Fixed (Assumed)	5	50,000	6.25	50,000
Cost of production	135	13,50,000	138.75	11,10,000
Add : Selling Expenses				
Fixed – 10 % of Rs. 13	1.30	13,000	1.63	13,000
Variable – 90 % of Rs. 13	11.70	1,17,000	11.70	93,600
Add : Distribution Expenses:				
Fixed – 20 % of Rs.7	1.40	14,000	1.75	14,000
Variable – 80 % of Rs.7	5.60	56,000	5.60	44,800
Total Cost of Sales	155	15,50,000	159.43	12,75,400

Illustration: 18

Prepare a flexible budget for overheads on the basis of the following data. Ascertain the overhead rates at 50 %, 60 % and 70 % capacity.

	At 60 % capacity *Rs.*
Variable overheads :	
Indirect Material	3,000
Indirect Labour	9,000
Semi-variable overheads :	
Electricity (40 % fixed 60 % Variable)	15,000
Repairs (80 % fixed 20 % Variable)	1,500
Fixed Overheads :	
Depreciation	8,250
Insurance	2,250
Salaries	7,500
Total overheads	46,500
Estimated direct labour hours	93,000

Solution:

Flexible Budget

Particulars	*50 % Capacity*	*60 % Capacity*	*70 % Capacity*
Variable overheads :			
Indirect material	2,500	3,000	3,500
Indirect labour	7,500	9,000	10,500
Semi-variable overheads :			
Electricity	13,500	15,000	16,500
Repairs and Maintenance	1,450	1,500	1,550
Fixed overheads :			
Depreciation	8,250	8,250	8,250
Insurance	2,250	2,250	2,250
Sales	7,500	7,500	7,500
Total Overheads	42,950	46,500	50,050
Estimated direct labour hours	77,500	93,000	1,08,500
Overhead Rate	Re. 0.55	Re. 0.50	Re. 0.46

Working Notes :

(1) Electricity: Rs. 15,000 is the cost of electricity at 60 % capacity, of which 40% are fixed overheads, i.e., Rs. 6,000 and variable is Rs. 9,000 :

For 60 % capacity variable overheads = Rs. 9,000

For 50 % capacity variable overheads = $\frac{9,000}{60}$ x 50 = Rs.7,500

Therefore electricity cost at 50 % capacity = 6,000 + 7,500 = Rs. 13,500

For 70 % capacity, variable overheads = $\frac{9,000}{60}$ x 70 = Rs. 10,500

Therefore electricity cost at 70 % = Rs. 10,500 + Rs. 6,000 = Rs. 16,500

(2) Repairs and Maintenance: Rs. 1,500 is the cost of repairs and maintenance at 60 % capacity, of which 80% is fixed overhead, i.e., Rs. 1,200 and variable is Rs. 300 :

For 60 % capacity variable overhead = Rs. 300

For 50 % capacity variable overhead = $\frac{300}{60}$ x 50 = Rs. 250

Therefore the total cost of repairs and maintenance at 50 %
= Rs. 1,200 + Rs. 250 = Rs.1,450

For 70 % capacity, the variable overhead = $\frac{300}{60}$ x 70 = Rs. 350

Therefore the total cost of repairs and maintenance
= Rs. 1,200 + Rs. 350 = Rs. 1,550

Illustration: 19

With the following data for a 60 % activity prepare a budget for production at 80 % and 100 % capacity

Production at 60 % capacity 300 units
Materials Rs. 100 per unit
Labour Rs. 40 per unit
Expenses Rs. 10 per unit
Factory expenses Rs. 40,000 (40 % fixed)
Administrative expenses Rs. 30,000 (60 % fixed)

Solution:

Flexible Budget

Particulars	*60 % Capacity 300 units*	*80 % Capacity 400 units*	*100 % Capacity 500 units*
Direct cost :			
Material Rs. 100 per unit	30,000	40,000	50,000
Labour Rs. 40 per unit	12,000	16,000	20,000
Expenses Rs. 10 per unit	3,000	4,000	5,000
Total Direct Costs	45,000	60,000	75,000
Add : Variable Factory Expenses (Rs. 40 per unit)	12,000	16,000	20,000
Variable Administrative Expenses (Rs. 20 per unit)	6,000	8,000	10,000
Fixed Factory Expenses (40 % of Rs, 40,000)	16,000	16,000	16,000
Fixed Administrative Expen. (60 % of Rs. 30,000)	18,000	18,000	18,000
Total	97,000	1,18,000	1,39,000

Illustration: 20

The Cost Sheet of a Company based on a budgeted volume of sales of 3,00,000 units per Quarter is as under :

	Rs. Per unit
Direct materials	5.00
Direct wages	2.00
Factory overheads (50 % fixed)	6.00
Selling and Administrative overheads (variable)	3.00
Selling Price	18.00

When the budget was discussed it was felt that the company would be able to achieve only a volume of 2,50,000 units of production and sales per Quarter. The Company therefore decided that an aggressive sales promotion campaign should be launched to achieve the following improved operations :

Proposal I :

(a) Sell 4,00,000 units per quarter by sending Rs. 2,00,000 on special advertising
(b) The factory fixed costs will increase by Rs.4,00,000 per Quarter

Proposal II :

(a) Sell 5,00,000 units per Quarter subject to the following conditions
(b) An overall price reduction of Rs. 2 per unit is allowed on all sales
(c) Variable Selling and Administration costs will increase by 5 %
(d) Direct Material costs will be reduced by 1 % due to purchase price discounts
(b) The fixed factory costs will increase by Rs. 2,00,000 more

You are required to prepare a Flexible Budget at 2,50,000 units, 4,00,000 units and 5,00,000 units of output per quarter and calculate the profit at each of the above levels of output.

Solution:

Flexible Budget

Particulars	*2,50,000 units* Rs.	*4,00,000 units* Rs.	*5,00,000 units* Rs.
Sales Revenue	45,00,000	72,00,000	8,00,000
Variable Costs :			
Direct Materials @ Rs.5	12,50,000	20,00,000	24,75,000
Factory Labour @ Rs. 2	5,00,000	8,00,000	10,00,000
Factory Overheads @ Rs. 3	7,50,000	12,00,000	15,00,000
Sales and Administrative Overheads (? variable) @ Rs. 3	2,50,000	4,00,000	5,25,000
Total Variable Cost	27,50,000	44,00,000	55,00,000
Contribution (Sales – Total Variable cost)	17,50,000	28,00,000	25,00,000
Fixed Costs :			
Factory Overhead	9,00,000	9,00,000	9,00,000
Sales and Administrative Overhead (Fixed)	6,00,000	6,00,000	6,00,000
Increase in fixed cost	–	4,00,000	6,00,000
Advertisement	–	2,00,000	–
Total Fixed Cost	15,00,000	21,00,000	21,00,000
Profit (Contribution – Fixed cost)	2,50,000	7,00,000	4,00,000

Illustration: 21

The Managing Director of your company has been given the following statement showing the result for August 2003.

Month ending 31st August 2003

	Master Budget	*Actual*	*Variance*
Units produced and sold	10,000 units	9,000 units	1000 units
	Rs.	Rs.	Rs.
Sales	40,000	35,000	(5,000) Adverse
	Rs.	Rs.	Rs.
Direct materials	10,000	9,200	800
Direct wages	15,000	13,100	1,900
Variable overhead	5,000	4,700	300
Fixed overhead	5,000	4,900	100
Total cost	35,000	31,900	3,100
Net profit	5,000	3,100	(1,900) Adverse

The standard cost of the product are as follows :

	Per unit Rs.
Direct material (1kg @ Re. 1 per kg)	1.00
Direct Wages (1 hour @ Rs. 1.50)	1.50
Variable overhead (1hour @ Re. 0.50)	0.50

Actual results for the month showed that 9,800 kg of material were used and 8,800 labour hours were recorded.

Required : (a) Prepare a flexible budget for the month and compare with actual results
(b) Calculate the variances which have arisen.

Solution:

Statement showing Flexible Budget and its Comparison with Actual

Particulars	*Master Budget*	*Flexible Budget*		*Actual for*	*Variance*
	For 10,000 Units	*Per Unit*	*For 9,000*	*9,000 Units*	
	Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*
Sales	40,000	4.00	36,000	35,000	1,000 (A)
Less : Variable cost:					
Direct materials	10,000	1.00	9,000	9,200	200 (A)
Direct wages	15,000	1.50	13,500	13,100	400 (F)
Variable overheads	5,000	0.50	4,500	4,700	200 (A)
Total Variable Costs	30,000	3.00	27,000	27,000	–
Contribution (Sales – Total variable cost)	10,000	1.00	9,000	8,000	1000 (A)
Less : Fixed overheads	5,000	0.50	5,000	4,900	100 (F)
Net profit	5,000	0.50	4,000	3,100	900 (A)

Illustration: 22

A company operates at 50 % of capacity utilization. At this level of operation, the sales value is Rs. 9,00,000. At 100 % capacity utilization the following costs and relationships will apply :

Factory Overheads Rs. 1,80,000 (50 % Variable)
Factory Cost 60 % of sales
Selling Costs (75 Variable), i.e., 20 % of sales

The company anticipates that its sales will increase up to 75 % of capacity utilization. The company also receives a special order from a government department. This order will occupy 15 % of capacity utilization of the plant. The prime cost in this order is Rs. 1,35,000 and the variable selling cost will only be 2 % of the sales value offered. Besides, the cost of processing the order is Rs. 8,000. The sales price offered is Rs. 1,45,000.

Required : (1) Present a statement of profitability at 50 % and 75 % level of activity.
(2) Evaluate the government order and state whether it is acceptable or not.

Solution:

Flexible Budget

Particulars	*50 % Capacity*	*75 % Capacity*
	Rs.	*Rs.*
Sales	9,00,000	13,50,000
Prime cost 50 % of sales 75 % of sales	4,50,000	6,75,000
Factory overheads :		
Variable Cost	45,000	67,500
Fixed Cost	90,000	90,000
Factory Cost (Prime cost + Factory overheads)	5,85,000	8,32,500
Selling Cost : Variable Cost	1,35,000	2,02,500
Fixed Cost	90,000	90,000
Total Cost (Factory Cost + Selling Cost)	8,10,000	11,25,000
Profit (Sales – Total Cost)	90,000	2,25,000

Working Notes:

Sales at 50% = Rs. 9,00,000
Sales at 100% = Rs. 18,00,000

Profitability at 100% Capacity

	Rs.	
Sales	18,00,000	
Prime Cost (10,80,000 – 1,80,000)	9,00,000	= 50% of sales
Factory Overhead	1,80,000	Given
Factory Cost	10,80,000	= 60% of sales
Selling Cost	3,60,000	= 20% of sales
Total Cost	14,40,000	
Profit (Sales – Total Cost) (18,00,000 – 1,44,0000)	3,60,000	

Evaluation of Government order (15 % Capacity)

	Rs.
Sales	1,45,000
Prime Cost	1,35,000
Factory overhead (Variable cost)	13,500
Selling cost variable @ 2 %	2,900
Processing cost	8,000
Total Cost	1,59,400
Loss (Sales – Total cost) 1,45,000 – 1,59,400	1,440

Hence not acceptable.

QUESTIONS

1. What do you mean by a budget?
2. What are the essentials of a budget?
3. What are the differences between budgets and forecasts?
4. What do you understand by budgetary control?
   Explain briefly the characteristics of a good budget.
5. What are the objectives of Budgetary Control?
6. What are the scope and techniques of Standard Costing and Budgetary control?
7. Describe essential requisites for effective budgetary control.
8. What do you understand by organization for budgetary control?
9. Write short notes on :
   (a) Budget Centre. (b) Budget Officer. (c) Budget Committee. (d) Budget Manual. (e) Budget Period. (f) Key Factor. (g) Performance of Budgeting.
10. What are the advantages of budgetary control?
11. What are the limitations of budgetary control?
12. Briefly explain the different types of budgets.
13. What you understand by control ratios?
14. What is sales budget? What are the factors considered in developing the sales budget?
15. Write short notes on :
    (a) Production Budget. (b) Cost of Production Budget. (c) Materials Budget.
16. What do you understand by Cash Budget? Discuss the procedure for preparing the cost budget.
17. What do you understand by Master Budget?
18. What do you understand by Fixed Budget and Flexible Budget? What are the advantages of Flexible Budget?
19. What are the differences between fixed budget and flexible budget?
20. Describe the different methods of preparing Flexible Budget.

EXERCISES

(1) XYZ Ltd. has prepared the budget for the production of a lakh units of the only commodity manufactured by them for a costing period as under :

Raw Material	2.52 Per unit
Direct Labour	0.75 Per unit
Direct Expenses	0.10 Per unit
Works overheads (60 % Fixed)	2.50 Per unit
Administration overhead (80 % Fixed)	0.40 Per unit
Selling overheads (50 % Fixed)	0.20 Per unit

The actual production during the period was only 60,000 units. Calculate the revised budget cost per unit.

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[**Ans :** Cost of Sales Rs. 4,65,000; Per unit @ Rs. 7.75]

(2) The expenses budgeted for production of 10,000 units in a factory are furnished below :

	Rs. Per unit
Materials	70
Labour	25
Variable overheads	20
Fixed overheads (Rs. 1,00,000)	10
Variable expenses (direct)	5
Selling expenses (10% fixed)	13
Distribution expenses (20 % fixed)	7
Administration expenses (Rs. 50,000)	5
Total cost of sales per unit (to make and sell)	155

Prepare a budget for the product of
(a) 8,000 units and (b) 6,000 units
Assume that administration expenses are rigid for all levels of production.
[**Ans :** Total Cost Rs. 12,75,400 for 8,000 units ; Rs. 10,00,800 for 6,000 units]

(3) The income and expenditure forecasts for months of March to August, 2003 are given as follows:

Months	Sales (credit)	Purchases (Credit)	Wages	Manufacturing Expenses	Office Expenses	Selling Expenses
March	60,000	36,000	9,000	3,500	2,000	4,000
April	62,000	38,000	8,000	3,750	1,500	5,000
May	64,000	33,000	10,000	4,000	2,500	4,500
June	58,000	35,000	8,500	3,750	2,000	3,500
July	56,000	39,000	9,500	5,000	1,000	3,500
August	60,000	34,000	8,000	5,200	1,500	4,500

Additional Information
You are given the following further information :
(a) Plant costing Rs. 16,000 is due for delivery in July payable 10 % on delivery and the balance after 3 months.
(b) Advance tax of Rs, 8,000 is payable in March and June each.
(c) Creditors allow 2 months credit and debtors are paying one month late. Opening balance of cash Rs. 8,000 lag or one month in expenses.
[**Ans :** Balance : May Rs. 15,750; June Rs. 12,750; July Rs. 18,400]

(4) From the following average figures of previous quarters, prepare a manufacturing overhead budgeted for the quarter ending on March 31, 2003. The budget output during this quarter is 6,000 units:

Fixed overheads Rs. 60,000
Variable overheads Rs. 30,000 (Varying @ Rs. 5 per unit)
Semi variable overheads 30,000 (40 % fixed and 60 % varying @ Rs. 3 per unit)
[**Ans :** 1,68,000]

(5) Calculate (a) Efficiency Ratio (b) Activity Ratio and (c) Capacity Ratio from the following figures :

Budgeted Production	176 units
Actual Production	150 units

Standard hour per unit	20
Actual working hours	1,200

[**Ans :** (a) Efficiency Ratio = 125%; (b) Activity Ratio = 85. 23%; (b) Capacity Ratio = 68. 18%]

(6) A department of Tan India Company attains sale of Rs. 6,00,000 at 80% on its normal capacity and its expenses are give below :

Particulars	*Rs.*
Administration Costs :	
Office salaries	90,000
General expenses	2% on sales
Depreciation	Rs. 7,500
Rate and Taxes	Rs. 8,750
Distribution Costs :	
Wages	Rs. 15,000
Rent	1% of sales
Other expenses	4% of sales
Selling Cost :	
Salaries	8% of sales
Traveling expenses	2% of sales
Sales office	1% of sales
General expenses	1% of sales

Draw up flexible administration, selling and distribution costs budget, operating at 90 per cent, 100 per cent and 110 per cent of normal capacity.

(7) The following expresses relate to a cost center operating at 80% of normal capacity (sales are in 12,00,000). Draw up flexible administration, selling and distribution costs budget operating at 90%, 100% and 110% of normal capacity.

Administration costs	*Rs.*
Office Salaries	30,000
General Expenses	1.5% of sales
Depreciation	15,000
Rates and taxes	17,500

Selling Costs	*Rs.*
Salaries	4% of sales
Traveling Expenses	1.5% of sales
Sales Office	1% of sales
General Expenses	1% of Sales

Distribution Costs	*Rs.*
Wages	30,000
Rent	5% of sales
Other expenses	2% of sales

[**Ans:** Total costs : 80% of capacity Rs. 6,000; 90% of Capacity Rs. 67,500; 100% of capacity Rs. 75,000; 110% of capacity Rs. 82,500.]

(8) PQR Company Ltd. has given the following particulars, you are required to prepare a cash Budget for the three months ending 1st Dec. 2003.

Months	*Sales*	*Materials*	*Wages*	*Overheads*
August	20,000	10,200	3,800	1,900
September	21,000	10,000	3,800	210
October	23,000	9,800	4,000	2,300
November	25,000	10,000	4,200	2,400
December	30,000	10,800	4,500	2,500

(i) Credit Terms are :

Sales / Debtors – 10% sales are on cash basis: 50% of the credit sales are collected next month and the balance in the following month

Creditors
- Materials 2 month
- Wages 1/5 month
- Overheads ½ month

(ii) Cash balance on 1st October 2003 in expected to be Rs. 8,000
(iii) A machinery will be miscalled in August, 2003 at a cost of Rs. 1,00,000. The monthly installment of Rs. 5,000 payable from October onwards.
(iv) Dividend at 10% on preference there capital of Rs. 3,00,000 will be paid on 1st December 2003.
(v) Advance to be received for sales of vehicle Rs. 20,000 in December.
(vi) Income tax (advance) to be paid I December Rs. 5,000
[**Ans:** October closing balance Rs. 7,390; November closing balance Rs. 8,180; December Bank overdraft Rs. 3,910]

(9) With the following data for a 60% capacity, prepare a budget for production at 80% and 100% activity.
- Production at 60% activity 600 units materials Rs. 100 per unit (100% variable)
- Materials Rs. 40 per unit (100% variable)
- Labours Rs. 40 per unit (100% variable)
- Direct Expenses Rs. 10 per unit (Rs. 6 per unit fixed)
- Factory expenses Rs. 40,000 (40% fixed)
- Administrative expenses Rs. 30,000 (60% fixed)

[**Ans:** Total Costs : 60% Capacity Rs. 1,60,000
80% capacity Rs. 2,00,800
100% capacity Rs. 2,41,600]

(10) A factory is currently to 50% capacity and produces 10,000 units estimate the profits of the company when it works at 60% and 80% capacity and offer your critical comments.

At 60% working raw materials cost increases by 2% and selling price falls by 2% at the 80% working, raw material cost increases by 5% and selling price falls by 5%.
A 50% capacity working the product costs Rs. 180 per unit and is sold at Rs. 200 per unit. The unit cost of Rs. 180 is made up as follows :

Materials	Rs. 100
Labour	Rs. 30
Factory Overhead	Rs. 30 (40% fixed)
Administrative Overhead	Rs. 20 (50% fixed)

[**Ans:** Rs. 2,00,000; Rs. 2,12,000; Rs. 2,12,000]

(11) PQR Ltd. manufactures two products X and Y. Product X takes 6 hours to make while product Y takes 12 hours. In a month of 25 days of 8 hours each, 1,200 units of X and 750 units of Y were produced. The firm employs 75 men in the department responsible for producing these two products. The budget hours are 1,86,000 per annum. You are required to calculate a Activity Ratio, Capacity Ratio and Efficiency ratio.
[**Ans:** Activity ratio 104.5%; Capacity Ratio 96.8% Efficiency Ratio 108%]

(12) Glass manufacturing company requires you to calculate and present the budget for the next year from the following information :

Sales :
Toughened glass Rs. 3,00,000
Bent Toughened glass Rs. 5,00,000
Direct Material cost 60% of sales
Direct wages 20 workers @ Rs. 150 P.M.

Factory Overheads
Indirect Labour – Works Manager Rs. 500 per month, Foreman Rs. 400 per month.
Stores and spares 2 ½% on sales
Depreciation machinery Rs. 12,600
Light and power Rs. 5,000
Repairs etc. Rs. 8,000
Other sundries 10% on Daily wages
Administration selling and distribution expenses Rs. 14,000 per annum
[**Ans:** Sales budget – sales revenues Rs. 7,86,000; production cost budget Rs. 5,76,000; expected profit as budgeted Rs. 2,10,000]

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