CHAPTER 3 - THE MASTER BUDGET AND RESPONSIBILITY ACCOUNTING

Overview of Budgeting

Developing a budget is the most important accounting tool to plan and control operations. *A budget is the **quantitative** expression of a proposed plan of action by management for a future time period.* It is an aid to the coordination and implementation of the plan. A budget can cover both financial and a non-financial aspect of these plan and help management of the organization to follow in the upcoming period.

Budgets covering financial aspects quantify management's expectations regarding future income, cash flows, and financial position. Just as individual financial statements are prepared covering past periods, so they can be prepared covering future periods – for example, a budgeted income statement of cash flows, and a budgeted balance sheet. Underlying these financial budgets can be non-financial budgets, say, units manufactured or sold and number of new products being introduced to the market. *A budget can also be described as a detailed plan outlining the acquisition and use of financial and other resources over a specified time period.*

Planning and Control

A good budgeting system should provide for both planning and control. **Planning** involves developing objectives and preparing various budgets to achieve those objectives. **Control** involves the steps taken by management to ensure that the objectives set down at the planning stage are attained and that all parts of the organization work together towards those objectives.

Thus, budgets can be used as a **benchmark** that allows managers to compare actual performance with expected or desired performance.

Advantages of Budgeting

There are many advantages of budgeting, including:

- Forces all levels of management to plan ahead.
- facilitate communication and coordination
- Provides definite objectives for controlling profit and operations.
- motivates personnel throughout the organization to meet planned objectives
- Evaluating performance and providing incentives.

Choosing a Budget Period

Budget periods vary in length. Some may be as short as a month, whereas others may cover many years. The most common budgeting period, however, is a year. The annual budget is often subdivided by months for the first quarter and by quarters for the remainder of the year. The budgeted data for a year are frequently revised as the year unfolds. For example, at the end of the first quarter, the budget for the next three quarters is changed in light of new information.

<u>The Master Budget</u>: Overall Plan

Master budget: a set of interrelated budgets covering all phases of an organization's operations for a specific period of time.

The master budget consists of a number of separate, but interrelated budgets. The components of the master budget for manufacturing firms are discussed in the following paragraphs.

The two major parts of a master budget are the operating budget and the financial budget. **Operating budget** (profit plan) is a major part of a master budget that focuses on the income statement and its supporting schedules.

Financial budget is the part of the master budget that focuses on the effects that the operating budget and other plans (such as capital budgets and repayments of debt) will have on cash.

1. The Sales Budget - The sales or *revenue* budget is a detailed schedule showing the expected sales for the coming period expressed in both birr and units of the product. It helps to determine how many units of a product will have to be produced. The sales budget is usually accompanied by a schedule of expected cash receipts.

2. The Production Budget – lists the number of units that must be **produced** during the budgeted period to meet the sales demand and to provide for desired ending inventory.

The budgeted production for each period can be determined by adding together the budgeted sales and the desired ending inventory and then subtracting the beginning inventory. *I.e.* ***BS + DEI - BI***

The desired ending inventory in units for each period is usually a predetermined percentage of budgeted unit sales for the following period.

In a merchandising firm, **a merchandise purchases budget** would replace the production budget. The merchandise purchases budget shows the amount of goods to be purchased from suppliers each period. This can be determined by adding together the budgeted sales and the desired ending inventory and then subtracting the beginning inventory. *I.e.* ***BS + DEI - BI***

As in a manufacturing firm, the desired ending inventory in units is usually some predetermined percentage of the unit sales for the following period.

3. The Direct Materials Budget - Once production needs have been determined, a direct materials budget should be prepared. This budget details the materials that will be required to fulfill the production budget and to ensure adequate inventory levels.

Materials purchases can be determined by adding together *the* ***materials required for production needs and the desired ending materials inventories and then subtracting the beginning inventory****.* The desired ending inventory in units is usually a predetermined percentage of the number of units that are expected to be used in production the following

period. The direct materials budget is usually accompanied by a schedule of expected cash disbursements for raw materials.

4. The Direct Labor Budget – is a quantitative estimate of the total direct labor **hours** required to complete the expected production during the budget period.

5. The Manufacturing Overhead Budget - The manufacturing overhead budget lists all production costs other than direct materials and direct labor. Manufacturing overhead costs should be broken down by cost behavior for budgeting purposes. Typically, the variable portion of manufacturing overhead is assumed to be proportional to budgeted activity and the fixed portion is assumed to be constant in total.

6. Ending Finished Goods Inventory Budget - This budget details the amount and value of ending inventory on the budgeted balance sheet. Data for the computations in this schedule are found in the direct materials, direct labor, and manufacturing overhead budgets.

7. The Selling and Administrative Expense Budget - The selling and administrative budget lists the anticipated non-manufacturing expenses for the budget period.

8. The Cash Budget - The cash budget is composed of four major sections:

a. *The receipts section.*

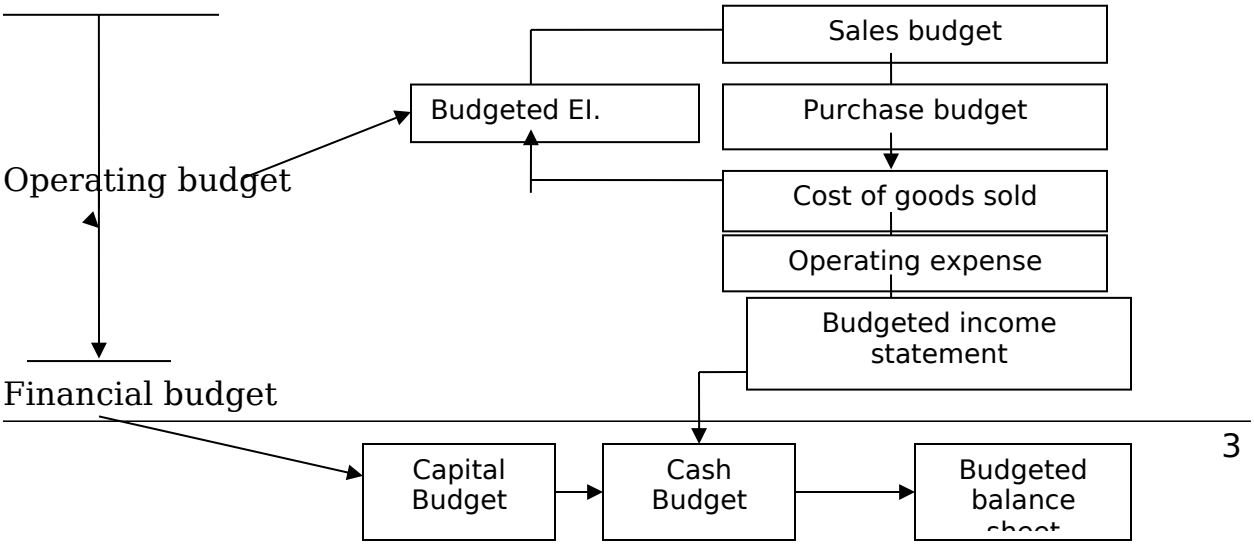
b. *The disbursements section.*

c. Cash receipts, plus the beginning cash balance, less cash disbursements results in *cash excess or deficiency*. If a deficiency exists, additional funds must be arranged for. If excess exists, previous borrowing can be repaid or short-term investments made.

d. *The financing section* of the cash budget provides a detailed account of the borrowing and repayments projected to take place during the budget period. It also includes a detailing of interest payments.

9. Budgeted Financial Statements - The last components of the master budget consist of the budgeted income statement and the budgeted balance sheet.

- The relationship between the master budget's components can be presented as follows.



Steps in preparing the master budget

Step 1: Prepare the following detailed schedules for each of the months of the planning period.

a. Sales budget
b. Cash collection from customer
c. Purchase budget
d. Disbursement for purchase
e. Operating expense budget
f. Disbursement for operating expense

Step 2:- using the above schedule prepare a budgeted income statement

NB- step 1 and 2 are used to prepare operating budget

Step 3:- prepare the following forecasted financial statements

a. **Cash budget** including details of borrowings, repayment and interest for each month of the planning period.
b. **Budgeted balance sheet** as of end of the planning period.

The Assumptions of Master Budget

Typically, the following simplifying assumptions are made when preparing a master budget:

1.) Sales prices are constant during the budget period,
2.) Variable costs per unit of output are constant during the budget period,
3.) Fixed costs are constant in total and
4.) Sales mix is constant when the company sells more than one product.

These assumptions facilitate the planning process by removing many of the economic complexities.

<u>Illustration of master budget for merchandising Business</u>

Use the following data to prepare the operating budget

The data are gathered from Cooking Hut Company (CHC) local retailer. For simplicity purpose, the planning period is only for four months. April through July 2009.

The sale on March was Br. 40,000 the following monthly sales are forecasted as follows.

April ----------**B**r 50,000
May ---------- 80,000
June ---------- 60,000
July ---------- 50,000
August ---------- 40,000

- Each item is sold at Br. 5.
- CHC expects 60% of sales is on cash and the remaining 40% on credit
- All credit sales are collected one month after sales

- March 31 A/R balance of Br. 16,000 (40% x 40,000)
- Tax and uncollectible expense are ignored.
- Average cost of goods sold is 70% of sales.
- End inventory is 20,000 + 80% of the next months C.G.S.
- A/P are paid as follows
  50% in the month of purchase
  50% in the next month of purchase
- Wage & commission payables are paid semimonthly & are assumed to be uniform each month. Monthly fixed wage is br. 2,500. Commissions 15% of sales.
- CHC buys fixtures for br. 3,000 in April.
- The followings are monthly expenditures

Miscellaneous expense	5% sales paid as incurred
Rent	2,000 paid as incurred
Insurance	200 expired per month
Depreciation including new furniture	500 per month

- CHC wants a minimum cash balance of br. 10,000.
  - Borrowing & repayment is made in multiples of 1,000.
  - Borrowing occurs at the beginning of the month whereas repayment is at the end.
  - Interest rate is 18%
  - The following is the beginning balance sheet for the month of April.

The Cooking Hut Company
Balance Sheet
March 31, 2009

Asset		
Cash ----------		10,000
A/R, net (0.4 X 40,000 March sales ----------		16,000
Inventory 20,000 + 0.8 (0.7X 50,000) ----------		48,000
Unexpired insurance ----------		1,800
Equipments, fixture and others ----------		37,000
Less Accumulated depn ----------	(12,800)	24,200
Total assets		
100,000		

Liabilities $ owners equity		
A/P (0.5 x March's purchase 33,600)	16,800	
Accrued wage and commission payable	4,250	
Owners equity	78,950	
Total liability & owner's equity		**100,000**

Solution to the illustrative example

Step 1 - Preparing schedules that is accompanied with the budgeted income statement.

i- Sales budget:-is a formal plan that sets provides the firm's anticipated sales in quantities and in Birr for the coming year on the bases of sales forecast. It is the base for making other forecasts

Schedule A: Sales budget

	March	April	May	June	July	Total
Budgeted sales (unit)	8,000	10,000	16,000	12,000	10,000	
Budgeted selling price	br. 5	Br. 5	Br. 5	Br. 5	Br. 5	
Total sales	40,000	50,000	80,000	60,000	50,000	240,000
Credit sales 40%	16,000	20,000	32,000	24,000	20,000	96,000
Cash sales 60%	24,000			36,000		

Schedule B: Cash Collection budget

Cash collection

Cash sales in this month				30,000		48,000
36,000 30,000						
Last month's credit sales				16,000		20,000
32,000 24,000						
Total collection			46,000	68,000		68,000
54,000						

ii- Merchandise purchase budget.

Schedule C: purchase budget.

	March	April	May	June	July	Total
End inv. (20,000 + 80% of	48,000	64,800	53,600	48,000	42,400	
Next C.G.S)			56,000	42,000		168,000
Plus: Cost of goods sold (70%	28,000	35,000	109,600	90,000	35,000	
of sales)						
Total good needed	76,000	99,800	64,800	53, 600	77,400	
Less beginning inventory		48,000			48,000	
Purchase		51,800	44,800	36,400	29,400	162,400

iii- Disbursement for purchase

- This schedule is on the bases of the purchase budget.
- It includes i. 50% of the current month purchase and
  ii. 50% of the previous month's purchase

Schedule D: Disbursement for purchases

	March	April	May	June	July
Purchase	33,600	51,800	44,800	36,400	29,400
Disbursement for purchases					
50% of last month's purchase		16,800	25,900	22,400	18,200
Plus 50% of this month's purchase		25,900	22,400	18,200	14,700
Disbursement for purchase		42,700	48,300	40,600	32,900

iv- Operating expense budget

- The budgeting of operating expense depends on two factors

i- Change in sales volume (month –to month) eg. Sales volume, delivery expenses

ii- Other cost driver activities. eg. rent, insurance

Schedule E operating expense budget

	March	April	May	June	July	Total
Wage (fixed)	2,500	2,500	2,500	2,500	2,500	
Commission (15% of monthly sales)	6,000	7,500	12,000	9,000	7,500	
Total wage & commissions	8,500	10,000	14,500	11,500	10,000	54,500
Miscell. Exp (5% of monthly sales)		2,500	4,000	3,000	2,500	12,000
Rent (fixed)		2,500	2,000	2,000	2,000	8,000
Insurance (Fixed)			200	200	200	800
Depreciation (fixed			500	500	500	2,000

Total Operating Expense	**15,200**	**21,200**	**17,200**	**15,200** **68,800**

v- disbursement for operating expense

Schedule F: disbursement for operating expense

	March	April	may	June	July
Wage & commission expense	8,500	10,000	14,500	11,500	10,000
50% of the month		5,000	7,250	5,750	5,000
50% of last month's expense		4,250	5,000	7,250	5,750
Total wage and commission		9,250	12,250	13,000	10,750
Miscellaneous Expenses		2,500	4,000	3,000	2,500
Rent expense		2,000	2,000	2,000	2,000
Total disbursement			**13,750**	**18,250**	**18,000** **15,250**

Step 2 - Preparing the budgeted income statement

Step 1 schedule A through F provides information to construct a budgeted income statement. However, it cannot be completed before the inclusion of interest expense, which is computed after the cash budget, is prepared.

CHC Company
Budgeted income statement
For 4 months ended July 31, 2009

	Source		
Sales	Sch-a		240,000
Cost of goods sold	Sch-c		(168,000)
Gross margin			72,000
Operating expense:-			
Wage and commission	Sch-e	46,000	
Rent expanse	Sch-e	8,000	
Miscellaneous expense	Sch-e	12,000	
Insurance expense	Sch-e	800	
Depreciation expense	Sch-e	2,000	(68,800)
Income from operation			3, 200
Interest expense			? (675)
Net income			? 2525

Step 3- preparing financial Budget

1. **Capital budget: -** is a budget that details the planned expenditure for facilities, equipment, new product and other long-term investment.
   - The preparation of capital budget is not covered by this course.
2. **Cash budget:-** it is a statement of planned cash receipts and disbursements with in a specific period of time. It helps managers to avoid excessive cash on hand or cash shortage.
   The cash budget has the following major sections.

i- Total cash available before financing (W): It is the sum of the beginning cash balance and cash receipt. The cash receipt is taken from the cash collection schedule. The total amount of each month's collection is taken.

ii- Cash Disbursement (x)

a. Purchase:- the disbursement for purchase is taken from schedule d
b. Payroll:- the wage and commission disbursement is taken from schedule f
c. Some cost and expenses disbursements depend on their agreement. For example, rent, mortgage, miscellaneous items. This payment is found from schedule f
d. Other disbursement includes outlay for fixed assets, long-term investment, dividends and the like.

iii- Minimum cash balance(y)

- Depending on the business nature, managers set this balance.

iv- Financing requirement (z)

- the amount of financing required depends on two factors
  i. total cash available(w)
  ii. Total cash needed (cash disbursement (x) & minimum cash balance (y))

Therefore, if the total cash balance (w) is less than the total cash needed, borrowing is necessary.

v- Ending cash balance (w-x+z)

- It is computed by subtracting disbursements from total cash available there by determining net cash balance and adding financing requirements or subtracting loan repayment on it
- The assumption is that when cash short occurs, seasonal borrowing is made and when there is excess cash, it will be used for repayment. This process is known as self liquidating.

CHC

Cash Budget

For 4 months ending July 31, 2009

	April	May	June	July

Beginning cash balance	10,000	10,550	10,970	10,965		
Add cash receipts:						
Collections from customers (sale)	46,000	68,000	68,000	54000		
Total cash available bef. Fin (w)	*56,000*	*78,550*	*78,970*	*64,965*	Cash disbursements	
Purchase (payment)	42,700	48,300	40,600	32,900		
Operating expense	13,750	18,250	18,000	15,250		
Purchase for fixture	3,000	- 0 -	- 0 -	- 0 –		
Total disbursements (x)	59,450	66,550	58,600	48,150		
Minimum cash balance (y)	10,000	10,000	10,000	10,000		
Less: total cash needed	*(69,450)*	*(76,550)*	*(68,600)*	*(58,150)*		
Net cash balance (deficiency)	**(13,450)**	**2,000**	**10,370**	**6,815**		
Financing						
Borrowing (at end of month)	14,000	- 0 -	- 0 -	- 0 –		
Repayment (at the end of month)	- 0 -	(1,000)	(9,000)	(4,000)		
Interest at 18 % per year	- 0 -	(30)	(405)	(240)		
Total cash inc. or dec. from financing (z)	14,000	(1,030)	(9,405)	(4,240)		
End of month cash balance (w-x + z)	10,550	10,970	10,965	12,575		

Computations of Interest

May: 1,000 x 0.18 x 2/12 = 30

June: 9,000 x 0.1 x 3/12 = 405

July: 4,000 x 0.18 x 4/12 = 240

3. **Budgeted balance sheet**

It is the final step in preparing master budget. While preparing a budgeted balance sheet, the beginning balance sheet is used as a base. It may increase or decrease in light of the expected cash receipt and cash

payments and non-cash items operating on the income statement. Such as prepaid insurance, equipments & properties

- Important computations to construct the budgeted balance sheet.

1. Cash – beginning cash balance ---------- 10,000
   Add total cash receipts ---------- 236,000
   Borrowings ---------- 14,000
   Less total cash disbursements ---------- (232,750)
   Repayments & interests ---------- (14,675)
   Ending cash balance ---------- 12,575 cash budget
2. Account Receivable

- 40% sales is made on credit. The entire credit sale is collected in the next month it is sold. Therefore, at July 31, 2009, none of the credit sales for July will be collected and is account receivable balance. 20,000 (0.4 x 50,000)

3. Merchandise inventory

- End inventory is 20,000 plus 80% of the next month's cost of goods sold; therefore, the end inventory for July is computed as follows.
  End inventory for July = 20,000 + 0.8 (0.7 x 40,000) = 42,400

4. Unexpired (prepaid) insurance:-
   Prepaid insurance as given on March 3, balance sheet was br. 1,800 the monthly insurance expense is Br 200 for 4 months totaling br. 800. Therefore, the end balance for July 31, is br. 1,000 (1,800- 800)
5. Plant asset and accumulated depreciation
   The beginning balance for equipment, fixture & others was br. 37,000 which increased by purchase for br. 3000.
6. Accumulated Depreciation (12,800 + 2,000) = 14,800
7. Account payable

- 50% of the monthly purchase price will be paid in the month the purchase is made while the remaining is paid in the next month. Therefore, the end balance for account payable is (29,400/2) = 14,700

7. Accrued wage and commission payable
   - 50% of wage & commission incurred in a month will be paid in the same month whereas the remaining is paid the next month. Those, 50% the waged commission expense incurred in July, will be reported as payable is the balance sheet.
8. Owner's equity

-It will increases by net income and decreases by dividend. Hence, the owner's equity balance as of July 31 is br. 81,475 (78,950 + 2,525)

ABC Company
Budgeted balance sheet
As of July 51, 2009

Asset

Current asset			
Cash (cash budget)	12,575		
A/R	20,000		
Merchandise inventory		42,400	
Prepaid insurance		1,000	
75,975			
Plant asset			
Equipments, fixture and others		40,000	
Accumulated depreciation	(14,800)	25,200	
Total asset			
101,175			
Liability & owner's Equity			
Current Liabilities			
Account payable (0.5 x July 27,400purchase)			14,700
Accrued wages and commissions payable		5,000	
19,700			
Owner's equity (78,950 + 2, 552)			
81,475			
Total liabilities and owners equity			
101,175			

Budgeting and Responsibility Accounting

Organizational Structure and Responsibility

Organization structure is an arrangement of lines of responsibility within the entity. Each manager, regardless of level, is in charge of a responsibility center.

A ***responsibility center*** is a part, segment, or subunit of an organization, whose manager is accountable for a specified set of activities. The higher the manager's level, the broader the responsibility center, and, generally, the larger the number of his or her subordinates. ***Responsibility accounting*** is a system that measures the plans (by budgets) and actions (by actual results) of each responsibility center. Four major types of responsibility centers are:

- ***Cost center*** – the manager is accountable for costs only.
- ***Revenue center*** – the manager is accountable for revenues only.
- ***Profit center*** – the manager is accountable for revenues and costs.

- ***Investment center*** – the manager is accountable for investments, revenues, and costs.

Feedback and Fixing Blame

Budgets coupled with responsibility accounting provide systematic help for managers, particularly if managers interpret the feedback carefully. Managers, accountants, and students of management accounting repeatedly tend to "play the blame game" – using variances appearing in the responsibility accounting system to pinpoint fault for operating problems. In considering variances, initially managers should focus on whom they should ask and not on whom they should blame. Variances only suggest questions or direct attention to persons who should have the relevant information. Thus, variances, properly used, can be helpful in evaluating managers' performance.

Responsibility and Controllability

Controllability is the degree of influence that a specific manager has over costs, revenues, or other items in question. A controllable cost is any cost that is primarily subject to the influence of a given responsibility center manager for a given time period.

A responsibility accounting system could either exclude all uncontrollable costs from a manager's performance report or segregate such costs from the controllable costs. Thus, a manager should be held responsible for those items of revenues and costs—and only those items—that the manager can actually control to a significant extent. The manager who is held responsible for a specific cost should have a budget specifying a limit on how much can be spent. This limit may be adjusted, depending upon the activity during the period.

Human Aspects of Budgeting

Management must keep clearly in mind that budgeting involves coordinating and motivating people and the human dimension is of primary importance.

First, top managers must clearly convey the message in actions as well as in words that budgeting is important. Top management has the ultimate

responsibility for budgets of the organization they manage. Management at all levels should understand and support the budget and all aspects of the management control system. Top management support is especially critical for obtaining active line management participation in the formulation of budgets and for successful administration of the budget. If top management appears to be ambivalent about the benefits of budgeting, others in the organization will be reluctant to commit their own time and energy to the budgeting process.

Second, if there is a preoccupation with getting every birr and cent right or with placing blame, the budgeting process will be resented and managers will attempt to "game the system." Budgets should not be used as a club. They should be a way of ensuring that everyone understands what is expected. Significant deviations from the budget should be investigated so that managers understand changing conditions and their implications for the organization. Managers should not ordinarily be punished for deviations from the budget.