Chapter-2
MANAGEMENT OF WORKING CAPITAL

2.1 INTRODUCTION:

The theory part of working capital is discussed in this chapter. The chapter deals with the concept of working capital, the working capital management, meaning of working capital management and working capital management and fixed assets management, need of working capital, principles of working capital management and structure of working capital. The types of working capital and their financial pattern are also discussed. This chapter describes determinants of working capital, adequacy and inadequacy of working capital, financing approaches of working capital, techniques of working capital analysis, test of working capital policy and profile of industries.

2.2 CONCEPT OF WORKING CAPITAL:

The funds required for financing the duration of operating cycle in a business are known as working capital.

In the financial and accounting world, the term "Working capital" is often misunderstood. There seems to be no unanimity with the concept of working capital amongst its users. It either lacks correct understanding or perhaps the users lack uniformity in the application of this term. This is an established fact because working capital is not mentioned in account form in the "Financial Statement". Due to this disagreement, some finance experts are of the view that it is better to avoid the expansion of working capital altogether. Though, there is no confusion regarding the distinction between working capital and fixed capital.

In analysing its synthesis or antithesis, the two terms, viz., working and capital are to be studied separately.
The term working means contributing something (in some way) to profits or engaging in some productive work. It implies a distinction between capital which makes such a contribution or engaged in some productive working. It also implies a distinction between capital that makes such contribution or engaged in production which does not work i.e. non-working.

On this basis the amount of non working capital appearing in the Balance Sheet is likely to be modest because no management would like to keep a non-productive item in its business for any length of time and almost all the money invested in a business is called "working capital". But such is not a case and therefore, this interpretation need not be given a serious thought. To avoid the notion of "productive" or "Non-productive", the meaning of "working" may be confined to capital consumed during the year in generating current profits. This idea indicates that the value of that portion of firm’s land, building, equipments and other fixed assets which are applicable to the production of current, distinguished from future, fall within the scope of working capital.

In other words, working capital includes fixed tangible and intangible assets to the extent of next year depreciation or amortisation. Considering this view of the term working, the fixed assets tangible-intangible both should be reclassified by splitting the amount traditionally shown under "Fixed assets" in the Balance Sheet into working and non working categories. Since it involves enumerable accounting problem, it cannot be recognised practical concept.

The term 'working' therefore means the circulation of capital in one form or another during the day to day operations of the business.
Similarly, there are controversies regarding the meaning of the term 'capital'. The Economists accept it as the wealth used in further production where the wealth may be expressed in monetary or non-monetary terms. But the Accountants mean by capital is the excess of "Assets over Liabilities", which indicate "Net Worth". In legal sense "Capital" refers the portion of the consideration received by a company upon the issue of its "Shares".

Capital in the business sense means the actual wealth or assets of a business in money. Such "Assets" may be "tangible or intangible". Thus, in the business, the word "capital" is money or money values used in the business regardless of source of obtaining it. For them "capital" is synonymous with the "total assets".

Affixing the adjective working to the noun 'capital' suggests that possibility of there being such a thing as non-working capital. For our present purposes, working capital refers to funds which are used during an accounting period to generate a current income of a type which is consistent with the major purpose of a company's existence. Thus, by definition, non-working capital becomes funds which do not produce current income or if they do produce current income, they do not generate an income of a type which is consistent with a company's existence. It may be noted that in this concept the distinction between working and non-working capital rests upon what the funds are doing and not upon the form in which they happen to exist.

Working capital funds are different from working funds in a business. Working funds are the total resources a business concern and include internal and external equities, which are sunk in current and fixed assets. Working capital funds, however, are in those which are sunk only in current assets of a concern.
The concept of net working capital enables a firm to determine how much amount is left for operational requirement.

Regarding the term "Working capital" those who define "capital" as the excess of total assets over total liabilities define it as the excess of current assets over current liabilities.

Those who believe that the capital is the actual wealth or assets of a business in a money whether tangible or intangible, accept the working capital as the sum of all the "current assets".

In accounting "working capital is the difference between the inflow and outflow of funds. In other words, it is the net cash inflow.

Thus, there are two distinct views about the concept of working capital. The first view is supported by authorities like Jules Bogen, Edward S. Mead, John C. Baker and D.W. Mallot, Kenneth Field, A.S. Dewing, A.K. Sen, who are of the opinion that working capital should be taken to mean current assets only. This concept is called gross concept. The second view is put forth by authorities like E.A. Sailers, Edward E. Lincoln, W. Mackenzie Stevens, H.G. Guthman and Herbert E Dongall, Colin Park and John W. Gladson, who hold that working capital should mean the total current assets minus current liabilities. This concept is called net concept.

The two concepts of working capital as defined above may also be known as quantitative concept (Gross) and qualitative concept (Net) because the gross concept represents the total amount of funds used for current operating purposes and net concept is the amount of current assets that has been supplied by long term sources. According to net concept, current assets must
exceed current liabilities and then only there can be working capital. On the other hand, if the current liabilities exceed the current assets, there is no working capital but there is a working capital deficit.

Current assets circulate in a business like blood in the human body and the working capital plays the same role in business as the heart does in the human body. As soon as the heart gets blood, it circulates the same in the body. In the same way, working capital funds are obtained and circulated in business operations. As and when this circulation stops, the business becomes lifeless. It is because of this feature that working capital is also known as the circulating capital due to its flow in circular nature. Gerstenberg explains this circulating term to mean all such assets, of a company as are changed from one form to another in the ordinary course of business, for instance, from cash to inventories, from inventories to receivables, from receivables back to cash. Therefore, circulating or operating capital is the sum of net working capital and current liabilities, in other words, the current assets. In the words of Adam Smith, "The goods of the merchant yield him no revenue or profit till he sells them for money, and the money yields him a little till it is again exchanged for goods, this capital is continuously going from him in one shape and returning to him in another, and it is only by means of such circulation or successive exchanges, that it can yield him any profit. Such capital, therefore, may very properly be called circulating capital. What we call current assets, Smith calls "Circulating Capital".

Both these concepts of working capital have their own significance. "If the objective is to measure the size and extent to which current assets are being used, "gross concept" is
useful, whereas in evaluating the liquidity position of an undertaking, 'net concept' becomes pertinent and preferable. This has been admirably summed up by Brown and Haward, who compare it with a river which is always there, but whose water level is constantly changing.

In the present study the term current assets and current liabilities have been taken in the same sense as defined by Fitzgerald in "Analysis and Interpretation of Financial Statements". According to him, "Current assets may be defined as cash and other assets which are expected to be converted into cash in the ordinary course of business within one year or within such longer period as constitutes the normal operations cycle of a business". He further defines, "Current liabilities are those liabilities where liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets, or the creation of other current assets or the creation of other current liabilities".

2.3 THE WORKING CAPITAL MANAGEMENT:

Working capital management is an integral part of overall corporate management. To a financial manager a working capital sphere throws a welcome challenge and opportunity. Importance of working capital can be judged from the fact that many a time the main cause of the failure of a business enterprise has been found to be the shortage of working capital and their mishandling. Inadequate working capital is a serious handicap in business, whereas greater amount of working capital is mismanagement of working capital. The fixed capital investments generate production capacity, and working capital makes the use of that capacity possible. Competent administration of working capital solves the problems of under utilisation of capacity. The success
or failure of concern mostly depends upon how efficiently working capital is managed.

Liquidity and profitability are two important and major aspects of corporate business life. A firm may exist without making profits may be treated as sick unit but one having no liquidity may soon meet with its downfall and ultimately die. Both the aspects are essential but profitability and liquidity are mutually exclusive. Balancing between liquidity and profitability is important because their co-existence is very difficult. If we emphasise more on liquidity it will adversely affect the profitability and similarly if we emphasise more on profitability it will adversely effect the liquidity. Therefore proper balance between profitability and liquidity should be maintained so that any objective may not suffer at the cost of others. Hence, the maintenance of balance between the two becomes an essential function of working capital management. The company can achieve maximum profitability and can maintain adequate liquidity with the help of efficient and effective management of working capital.

In modern financial management, administration of working capital is an important and challenging task due to high proportion of working capital in a business and some of its peculiar characteristics.

Generally working capital is financed by commercial banks and bank credit is the scarcest national financial tool. So far the proper and desired use of bank credit in the development of Indian economy, RBI placed controls for maintenance of discipline in the use of bank credit like credit authorization scheme-1965 and appointed various committees to suggest the measures of discipline. e.g. Dehejia Committee - Oct.68, Tandon Committee July-1974, Chore Committee - March-79.
The above discussion shows that working capital management has occupied an important place in financial management. It has been rightly said that, "working capital management has been looked upon as the driving seat of a financial manager." Constant management is required to maintain appropriate level in the various working capital accounts.

2.4 MEANING OF WORKING CAPITAL MANAGEMENT:

The management of current assets (normally converted into cash within an accounting year) and current liabilities (generally discharged within a year) and the interrelationship that exists between them may be termed as working capital management. Working capital management is also known as current assets management because it requires much of the financial manager's time. According to James C. Van Horne, "Working capital management is usually considered to involve the administration of current assets - namely cash, marketable securities, receivables and inventories - and the administration of current liabilities.

Thus working capital management is an attempt to manage and control the current assets and the current liabilities in order to maximise profitability and proper level of liquidity in business. Function of management of working capital includes - Requirement of investment in working capital, optimum level of investment into different current assets, Relationships between current assets and current liabilities, optimal proportion between long term sources and short term sources of funds to finance working capital, and ascertainment of appropriate source of working capital finance.
2.5 WORKING CAPITAL MANAGEMENT AND FIXED ASSETS MANAGEMENT:

To some extent, the management of working capital is similar to that of fixed assets management because both initially analyse the effects on profitability and risk. The working capital management, however, is not the same as fixed assets management. Working capital management refers to the management of current assets and current liabilities. According to James C. Van Horne, "Current assets by accounting definition, are assets normally converted into cash within one year. Administration of fixed assets (assets normally not converted into cash within one year), on the other hand, is usually considered to fall within the realm of capital budgeting."

Actually, the fixed assets are acquired to be retained in the business over a period of time and to give returns over the life of the assets. So the time factor is very important in it. Further, discounting and compounding techniques to adjust the value of benefits accruing from such fixed assets over a period of time play a vital role in fixed assets management. Contrary to it, working capital loses its identity very quickly, usually within a year.

Yet, another notable feature of current assets is the problem of liquidity versus profitability and the related aspect of risk. If the size of current assets is large, it will strengthen the firm's liquidity position but profitability may be adversely affected as funds will remain idle. Conversely, if the size of current assets is relatively small, the overall profitability may improve, but it will have an adverse effect on the liquidity position and make the firm more risky.
2.6 NEED OF WORKING CAPITAL:

Working capital is needed mainly because the production takes place first and then comes the sales.

The objective of financial decision making is to maximise the shareholders' wealth. To achieve this, it is necessary to generate sufficient profits. The extent to which profits can be earned will naturally depend upon the magnitude of the sales. Among other things, a successful sales promotion programme is, in other words, necessary for earning profits by any concern. However, sales are not converted into cash instantly. There is invariably a time-lag between sales of goods and receipts of cash. There is, therefore, a need for working capital in the form of current assets to deal with the problem arising out of the lack of immediate realisation of cash against goods sold. Thus, sufficient working capital is necessary to sustain sales activity. Technically, this is referred to as the operating or cash cycle. The operating cycle can be said to be as the heart of the need for working capital. K.V. Smith aptly observes, "The continuing flow from cash to suppliers, to inventories to account receivable and back into cash is what has been called the operating cycle." According to O.M. Joy, "The term 'Cash Cycle' refers to the length of time necessary to complete the following events:"

(a) Conversion of cash into inventory,
(b) Conversion of Inventory into receivables
(c) Conversion of receivables into cash."

This cycle will continue throughout the life of the business as shown in figure as under:
Above operating cycle relates to the manufacturing company.

If it were possible to complete the sequences instantaneously, there should be no need of working capital management. Since it is not possible, a concern is forced to have current assets. Since cash inflow and outflow do not match, the concern has necessarily to keep cash or invest in short term liquid securities so that it will be in a position to meet obligations when they become due. Similarly, the concern must have adequate inventory to guard against the possibility of not being able to meet a demand for its products. Adequate inventory, therefore provides a cushion against being out of stock. If a concern has to be competitive, it must sell goods to customers on credit which makes it necessary to hold account receivable. It is in these ways that an adequate level of working capital is absolutely necessary for smooth sales activity which, in turn, enhances the owner's wealth.

2.7 PRINCIPLES OF WORKING CAPITAL MANAGEMENT:

The financial manager should consider the following principles while exercising working capital management: which has laid down by E.L. Walker and elucidated by C.Van Horne

2.7.1 Principle of Risk Variation:

Risk here refers to the inability of a firm to maintain sufficient current assets to pay for its obligations. This
principle is concerned with the relationship between the levels of working capital and sales. If working capital is varied relative to sales, the level of risk that concern assumes is also varied and the chances of gain or loss are increased. This principle implies that the definite relation exists between the degree of risk and the rate of return. As a concern assumes more risk, the opportunity of gain or loss increases accordingly. As the level of working capital relative to sales decreases, the degree of risk increases. Thus, if the size of working capital goes up, the amount of risk goes down and the opportunity for loss or gain is likewise adversely affected.

The size of working capital depends upon the attitude of the management. A conservative management likes to reduce the risk by holding a higher level of working capital, while a liberal management assumes higher and higher risk by minimising the level of working capital. The object of a management should, however, be that level of working capital which would optimize the concern's rate of return.

2.7.2 Principle of Cost of Capital:

The first principle deals with the risk associated with amount of working capital employed in relation to sales whereas second principle is concerned with the risk resulting from the type of capital used to finance current assets. The second principle is the type of capital used to finance the working capital directly affects the amount of risk that a firm assumes as well as the possibility of gain or loss and cost of capital.

Investors relate the price of their capital to the degree of risk associated with the various types of securities. They charge high for equity capital than for debts because equity capital possesses high risk. Thus management is able to brighten its prospect for high returns on its equity capital through the use
of debt capital. A firm wishing to minimise risk will employ only equity capital; however, in so doing, it foregoes the chances of higher returns on equity capital. But the increase in return by undergoing more risk is truly only upto certain point. When excessive risk is assumed, a firm's chance of loss will evidently overshadow its opportunity for gain and at this point return to equity is threatened. Unlike rate of return, the cost of capital moves inversely with risk i.e. as additional risk capital is employed by the management, cost of capital declines. This relationship prevails until a firm's optimum capital structure is achieved; thereafter, the cost of capital rises. This not only because the creditors will raise the amount of interest charged, but also the suppliers of equity capital will lower the price they are willing to pay for various types of equity securities.

Thus there are different sources of finance having different cost of capital. It should be kept in mind that the cost of capital is in inverse proportion to risk.

2.7.3 Principle of Maturity of Obligation:

As stated above, the extent of the use of debt depends upon the level of risk a management wishes to undertake. It should be noted that the risk is not only associated with the amount of debts used related to equity but also related to the nature of the contracts negotiated by the borrower. The dates of maturity and restrictive clauses of the contracts are the most important characteristics of debt contracts that directly affect the firm's operation. A firm should make every attempt to relate maturities of obligation to its flow of internally created funds. There should be least disparity between the maturities of firm's current obligations and its flow of internally generated funds because the greater the disparity between the maturities of
firm's short-term debts instruments and its flow of internally generated funds, the greater the risk and vice versa. Incidentally, management is not compensated for assuming the risk referred to in this concept; therefore, under no circumstances should the risk be assumed.

The lag between expected net cash flows and payment of debt (called Margin of Safety) will depend upon the risk preference of management. The shorter the maturity schedule of debt, the greater the risk that the firm will not be able to pay the debt and the longer the maturity schedule of debt in relation to expected net cash flows, the less the risk of inability to pay debt. However, financing is likely to be more costly under longer maturity schedule, thus cutting into profits. Profits can be maximised by making every efforts to tie debt maturities with the cash inflows of internally generated funds because, in such a case, there will be no need to hold low-yielding liquid assets nor to have more long-term financing than is absolutely necessary.

2.7.4 Principle of Equity Position:

The main purpose of management is determining the ideal level of working capital. This principle serves as a basis for determination and is applicable to investments made not only in various component of working capital but also in fixed assets. Stated precisely it is as follows: Capital should be invested in each component of working capital as long as the equity position of the firm improves. So according to this principle, the amount of working capital invested in each segment should be adequately justified by a concern's equity position. Every rupee invested in the working capital should contribute to the net worth of the concern.
On the whole, a management has to determine the liquidity of the firm on the basis of the information about risk and opportunity costs of holding liquidity. The degree of liquidity desirable is a function of the probability of insolvency at various levels of liquidity, the opportunity cost of maintaining those levels and the cost of bankruptcy. Therefore, the behaviors of the management should be influenced not only by the risk and the opportunity costs associated with the various levels of liquidity but also by the cost of bankruptcy. Thus management must behave in a manner consistent with maximisation of share holders' wealth.

2.8 STRUCTURE OF WORKING CAPITAL:

Structure of working capital means the study of elements of current assets and current liabilities. The main elements of current assets are cash and bank balances inventory, receivables and other quick resources like short term or temporary investments. Current liabilities include payables, bank overdrafts, outstanding expenses, loans and advances and proposed dividends.

2.8.1 Inventory:

Inventory generally constitutes a major portion of current assets. The profitability of a business depends upon the turnover of working capital and that in turn depends to a large measure upon the turnover of inventory. The term "Inventory" according to the American Institute of Accounts, designates, "the aggregate of those items of tangible personal property which (1) are held for sale in the ordinary course of business, (2) are in the process of production for sales and (3) are to be currently consumed in production of goods or services to be available for sale."
The above definition shows that inventory may be divided mainly into three classes: raw materials, work in process and finished goods.

2.8.2 Receivables :

Receivables are asset accounts representing accounts owed to the firm as a result of the sale of goods or services in ordinary course of business. Generally major part of the sales are on credit. It is a fact that credit allowed to customers, boosts the sales. In this sense, receivables play an important role in ensuring a higher turnover for the firm concerned. Increase in receivables results from several causes: increase in sales, size of cash discount, length of credit terms, volume of delinquent accounts.

Thus, the size of receivables depends much upon the credit policy of a firm. The success of the credit policy, in turn, depends much on the efficiency of the collection department.

2.8.3 Cash :

Cash is one of the most significant means of day to day operations of a business, as it is a form of liquid funds which are available for prompt payment at any time. Cash is both a means and an end for a firm. All the firms, hold cash for three motives: transaction, contingency and opportunity motives.

The cash balance of a firm is influenced by credit position of firm, status of firm's receivables and inventories, nature of business enterprises, management attitude towards risk and size of sales in relation to fixed assets. Besides these factors, cash balance is also influenced by availability of short term credit, money market rate and variations in cash flows.

The management should judge well how much cash should be held in hand and in the bank for meeting existences. It has to
be remembered that cash and bank balances are absolutely unproductive or non-earning assets, so they should be kept at the minimum level needed for meeting business requirements. No easy formula can determine the amount of cash a business should maintain. The optimum depends on various factors influenced on it.

2.9 TYPES OF WORKING CAPITAL AND THEIR FINANCING PATTERN:

Working capital can be classified as under:

2.9.1 Permanent, fixed or regular working capital:

Permanent working capital is the minimum amount of current assets which is continuously required by the business even during the dullest season of a year to carry on its operations. This level of working capital should always be maintained by a business, so that it might be in a position to run the business even during the dullest season of the year. It has the following characteristics:

(I) It is classified on time basis

(II) It continuously varies from one asset to another and continuous to remain in the business process.

(III) It also varies with the growth of business.

2.9.2 Temporary, fluctuating, variable or seasonal working capital:

Temporary working capital is the extra amount of current assets which are required during the more active business season of the year. Its main features are as under:

(a) It is particularly paired to a concern of a seasonal or cyclical nature.

(b) It is not always gainfully utilised, though it may change from one asset to another as fixed working capital does.
In the words of D.M. Joy, "Any amount over and above the permanent level of working capital is temporary, fluctuating or variable working capital."

Figure 2.1 (Page No.1) illustrates the difference between permanent and temporary working capital relating to growing firm.

The figure indicates that with the expansion in the size of the firm over the period, the requirement of permanent working capital also increases. Tandon committee has referred to this type of working capital as "hard core working capital". Hard core working capital represents the minimum amount of investments in inventories, account receivables and cash balance which an industrial undertaking requires to carry on at a certain level of activity.

The financing pattern of fixed assets and current assets in a particular firm depends on the policy of the management to bear risk. There are three different approaches which may be adopted, i.e. matching approach or hedging approach, which involves matching of effected life of assets with the expected life of funds raised (as depicted in figure 2.1 Page No.1), conservative approach, when the firm relies more on the long term sources of funds and use of short term funds is limited only to emergency situations, and aggressive approach, which involves the use of more short term sources of financing than warranted by the matching plan.

2.10 DETERMINANTS OF WORKING CAPITAL:

There are numerous factors which affect the working capital requirement of a concern. An efficiency appraisal of these factors assists the management in formulating sound working capital policies and estimating its requirements rightly. As there occur continuous variations in economic environment, it is
a very delicate exercise to decide the level of current assets required at a time, after making due adjustments for changes that have taken place. Though it is difficult to quantify the influence of each of the factors affecting working capital, one can appreciate their significance. Realising the complications involved in working capital estimates, Gestenberg observes, "Although no definite rule can be established for determine working capital requirement, we can arrive at some general principles. Certain influences, some inherent in the nature of the business and the others arising out of business management policies, affect each of the items of current capital."

It is found that the factors given below affect not only the requirements of working capital but also influence to a great extent the composition or structure of working capital. It is believed that any attempt at working capital management could be improved upon with greater understanding of the underlying factors. The important factors are as follows:
(a) Nature of business
(b) Period of manufacture and the cost of product.
(c) Volume and terms of purchase
(d) Volume and terms of sales
(e) Size of business unit
(f) Degree of specialisation
(g) Capacity utilisation
(h) Seasonal variations
(i) Co-ordination between production and distribution.
(j) Business cycles
(k) Management policy and
(l) Miscellaneous factors such as Government policies, transport and communication system and economic and political environment.
2.11 ADEQUACY OF WORKING CAPITAL:

The importance of adequacy of the working capital in a business cannot be over emphasized. To run a business efficiently an adequate amount of working capital is very essential. In its absence, fixed assets cannot gainfully be utilised. Therefore, business should have enough funds to meet its obligations well in time. To avoid interruption in the business operation, a concern requires funds to finance inventories and receivables. The adequacy of cash and other current assets together with their efficient handling virtually determine the survival or demise of an enterprise. Hence, working capital is considered the life blood and the controlling nerve centre of the business.

Therefore, a business has to maintain an adequate amount of working capital throughout its life. Working capital should be adequate for the following reasons:

I. It enables a concern to operate its business more efficiently, because there is no delay in obtaining raw materials etc.

II. It safeguards a business from the adverse effects of diminution in the value of current assets.

III. It enables a business to meet all its current obligations well in time and to take advantage of cash discount.

IV. There may be need to offset losses from operations

V. There may be a need to offset excessive non-trading and abnormal losses.

VI. The management may have to present facts to obtain funds from different sources for expansion purposes.

VII. There may be unnecessary accumulation of inventories.

VIII. It enables the concern to hold its own even during a period
IX. It enables a concern to extend favorable credit terms to customers.

X. There may be a need to counter an unwise dividend policy.

XI. Working capital funds may be invested in non current assets.

XII. The management may fail to accumulate funds for the redemption of debentures.

2.12 INADEQUATE AND EXCESS WORKING CAPITAL:

In case concern fails to plan the requirement of working capital properly, it may have on one occasion inadequate working capital and on another occasion excess working capital. A concern may have inadequate working capital mainly because of the following reasons:

I. Shortage of liquid funds.

II. Nil or under investment in marketable securities.

III. Under investment in receivables.

IV. Under Investment in inventory.

The effects of inadequate working capital are at times alarming. The immediate effects of inadequate working capital are:

(i) low liquidity
(ii) low profitability
(iii) higher interest charges
(iv) underutilisation of production capacity.

The above description leads us to the conclusion that shortage in working capital caused mainly due to insufficient cash presents a very serious problem. Every concern should, therefore, plan its cash requirements properly and try to maintain the required balance in cash. Failure to do so may lead to bankruptcy and early liquidation of the concern. If the actual investments in working capital is more than the actually required amount, it is termed as excess working capital or mismanagement.
of working capital funds. A business house may have excess working capital mainly due to the following reasons:

(i) Over investment in inventory
(ii) Over investment in receivables
(iii) Excess idle cash
(iv) Over investment in marketable securities.

2.13 FINANCING OF CURRENT ASSETS:

Current assets of a concern are financed by spontaneous current liabilities (trade creditors, bank over credit, short term loans and provisions), and long term sources (share capital and debentures mainly). Assuming that the level of spontaneous current liabilities is determined by extraneous factors (business practice, income tax and dividend etc.), the relevant question in current assets financing is: What should be the relative proportion of short term sources of financing and long term sources of finance? The following three approaches have been applied in practice.

2.13.1 Matching Approach:

If the concern adopts a matching approach for financing, each asset will be offset by a financing instrument of the same approximate maturity. In other words, the firm can adopt a financing approach which involves the matching of expected life of assets with the expected life of the sources of funds raised to finance assets. Thus, a seven year loan may be raised to finance a plant and machinery with an expected life of seven years, stock to be sold in one month may be financed with a one month bank loan and so on. Short term or seasonal variation in current assets would be financed with short term funds. This situation is illustrated in the figure 2.2. (Page No. 1)

If total fund requirements behave in the manner shown in the
figure 2.2 only the short term variation shown at the top of the figure will be financed with short term debt. To finance short term needs with long term sources would necessitate the payment of interest for the use of funds. With a matching approach of financing, a borrowing and payment schedule for short-term financing would be arranged to correspond to the expected swing in current assets. Fixed assets and the permanent current assets would be financed with long term sources of funds.

2.13.2 Conservative Approach:

An exact matching plan may not be possible in practice. Therefore, a firm may adopt a conservative approach to finance its current assets and fixed assets. The financing policy of the firm may be said to be conservative when it relies more on the long term sources of funds for financing its requirements. The use of short term funds should be limited only to emergency situations or when there is an unanticipated outflow of funds. It can be seen in the figure 2.3 (Page No.II) that under conservative approach of financing long term funds are used to finance fixed assets, permanent current assets and a part of temporary current assets.

2.13.3 Aggressive Approach:

A concern may be aggressive in financing its current assets. An aggressive approach is said to be followed by the concern when it uses more short term sources of financing than warranted by the matching plan. Under an aggressive approach, the concern finances a part of its permanent current assets with short term sources of funds. Some extremely aggressive concerns may even finance a part of their fixed assets with short term sources of funds. The relatively greater use of short term sources of funds makes the concern more risky. The aggressive financing approach
2.14 TECHNIQUES OF WORKING CAPITAL ANALYSIS:

There are two main measuring tools or techniques for analysing the working capital position of a firm. (i) Fund Flow Analysis (ii) Ratio Analysis.

2.14.1 Fund Flow Analysis:

Fund flow technique helps to analyse the changes in working capital components between two balance sheet dates. Fund-flow analysis states how much funds have been obtained from different sources to finance working capital and how they have been utilised. The statement of changes in working capital is based mainly only on the same approach as used for preparation of fund flow statement. The necessity of the funds flow analysis is now realised by all.

"...... information concerning the financing and investing activities of a business enterprise and the changes in its financial position for a period is essential for financial statement users, particularly owners and creditors, in making economic decisions. When financial statements purporting to present both financial positions (balance sheet) and results of operation (statement of income and retained earnings) are issued, a statement summarizing changes in financial position should also be presented as a basic financial statement for which an income statement is presented". The funds-flow technique of analysing working capital, does not clarify the importance of movement in the working capital structure. Further this technique can be used only by the internal management in its control of working capital. Moreover, it does not throw light on the questions whether the capital is being used most efficiently or whether the
current financial position of the firm has improved.

2.14.2 Ratio Analysis:

The most important and commonly used technique for the analysis of working capital in modern time is the "Ratio Analysis". It is the basic technique used in judging the liquidity position of a concern. "A ratio is simply one number expressed in terms of another". There are two ways of expressing ratios, viz. (1) the "Phrase Method", such as "two for three", (2) the "percentage method", such as 200 percent.

"Ratios are simply a means of highlighting in arithmetical terms the relationship between figures drawn from financial statement". In the words of J. Batty, the term "accounting ratios" is used, "to describe significant relationship which exists between figures shown on the balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organisation.

The technique of ratio analysis is gaining acceptance in the accounting and mathematical world. Helfert has rightly stated, "The ratio analysis provides guides and clues especially in spotting trends towards better or proper performance and in finding out significant deviation from any average or relatively applicable standard".

Although ratio analysis is used widely but it should be kept in mind that "No one ratio will give the entire picture, but they do tend to give indications, which cumulatively assist considerably in appraisal of financial position and operation of the organisation". Ratios by themselves are not conclusions, the analyst must draw inferences from the ratio he has computed before he can reach at any conclusions. In brief, "It should be remembered that ratios are only guides in analysis, and not
conclusive ends in themselves.

2.14.3 Trend Analysis:

Trend analysis makes it easy to understand the changes in an item or a group of items over a period of time. For this purpose a base year is selected and the amount of that item relating to the base year is taken equal to 100 and index number are computed for other years based on the amount of that item in those years. It is dynamic method of analysis of showing the changes over a period of time. This method of analysis indicates the direction in which a firm is going and thus helps in making forecasts of future trends.

2.14.4 Other Techniques:

Some other techniques like cash flow analysis and a few statistical mathematical techniques can also be used for the analysis of working capital. The statistical techniques generally applied are moving average, index numbers, range, correlation, regression and analysis of time series.

2.15 TESTS OF WORKING CAPITAL POLICY:

There are four test of working capital policy.

<table>
<thead>
<tr>
<th>Level of Working Capital</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>TEST OF WORKING CAPITAL POLICY</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Health</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
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</tr>
</tbody>
</table>

1. Level of working capital: This should be maintained by careful study of the movement of working capital in successive periods. If a management can develop a pattern in these movements, this pattern would serve as guide to its changing requirements in relation to certain decisions which
are made from time to time.

2. Structural Health: The relative health of the various component of working capital should be considered from the point of view of liquidity. It is necessary to draw structural relationships in respect of each component constituting the current assets.

3. Circulation: This is an important feature of the liquid position and involves the natural activity cycle of an enterprise. Ratios may be calculated to show the average period required for the conversion of raw materials into finished stock, finished goods into sales and sales into cash.

4. Liquidity: A more comprehensive test to measure liquidity may be adopted by using the following two ratios, each expressed as percentage of:
   a. Stocks to Current assets.
   b. Liquid resources to current assets.

2.16 INDUSTRY PROFILE:

2.16.1 Cement Industry:

Country is said to have developed/developing only when it sets its sights on its infrastructure development. This is the very fabric of a country without which the country’s progress and growth is stalled. Housing, transport, irrigation are some of the basic needs which sum up the nation’s inherent strength. And to achieve this end, the core sector plays the crucial role. Power, steel, telecommunication, coal and cement are some of the core sectors through which revolve the infrastructure development. The core sector which is presently riding the crest of a boom is the cement industry.
India’s cement industry has experienced steady progress since its inception in 1914. The output of the major and the mini cement plants has increased from 57.96 million tonnes in 1993-94 to 62.35 million tonnes in 1994-95. The output of cement may be a high at 68 million tonnes in 1995-96. India is the fourth largest cement producer, after China, Japan and the USA, with a turnover of Rs. 120 billion, comprising 54 companies with 106 plants, scattered over 18 states and its present installed capacity is over 77 million tonnes of which 67.5 million tonnes (88 %) is with private sector and only 9.5 million tonnes (12 %) with public sector. Cement production by the large plants contribute four million tonnes. Capacity wise, the western region dominates the rest of the country with 40.5 % followed by the southern region (28.9 %), northern region (20.6 %) and lastly the eastern region contributing 10 % to the total capacity.

The cement industry in India, is poised to scale new heights thanks to the liberalisation policies of the Government, adoption of state of the art technology and a massive investments of Rs. 100 billion. By the year 2000 AD, capacity of this industry is likely to reach the impressive level of 100 million tonnes. And India is expected to become the second largest, after China, by the turn of the century.

**Types of Cement :**

When specialisation is the order of the day, why should cement be far behind building of the nation? The liberalisation of the economy and wide scale industrialisation have sparked off steady demand for this product.

To meet the demand, along with the basic varieties of cement like ordinary port land cement (OPC) port land pozzolana cement (PPC), special varieties of cement like high alumina cement, rapid setting cement, oil well cement, sulphate resisting cement,
low heat cement and white cements are being produced on a large scale. Out of the total 58.35 % million tonnes of cement production, at present special varieties constitute only 17 %. However, Industry experts feel that in the near future this segment is going to experience significant growth. India is also producing high strength cement like grade 43 and 53. Low heat cement is produced for the massive construction of dams, barrages, deep foundations for high rise buildings etc.

The manufacturing process of cement involves (I) blending materials containing calcium oxide such as lime-stone, clay, shale and sand, (II) Clinkerising this mixture at high temperature in a kiln, (III) grinding the clinker and other additives to produce the finished cement.

The most popular technologies being adopted by the cement industry are: the wet process and the dry process or semi dry process. In recent years, almost all capacity additions have adopted the modern dry process technique. About 86 % of the output is at present produced through the dry process technology, 12 % through wet process and 2 % through semi-dry process.

The announcement of a policy assuming 12 % post tax return on net worth by the Government in 1979 boosted the investments climate in the industry. The partial decontrol introduced in 1982 and the full decontrol introduced in 1989 have also contributed to the rise in cement output. The excise revenue from cement industry steadily increased from Rs. 1700 million in 1980-81 to Rs. 20,700 million in 1993-94.

However, the per capita consumption of cement is only 67 Kg. against the world average of 210 Kg. This is primarily because use of cement has not gone beyond conventional areas of construction, to other areas like ready-mix concrete road construction, rural housing, lining of water and canal ways, etc.
promotion of diversification in cement use awaits an intensification of efforts through awareness creation among bulk consumers. China’s per capita consumption showed a significant rise from 39 Kg in 1970 to 300 Kg in 1993.

Cement capacity increased from 24.30 million tonnes in 1980-81 to 61.55 million tonnes in 1989-90, achieving an annual growth of 9.7%. By 1993-94, installed capacity rose to 74.40 million tonnes, registering a growth rate of 6% over 1992-93. Capacity utilisation ranged from 73% to 81% in the seventh five year plan period. It increased to 86% in 1993-94.

The domestic demand is assumed to grow at 8% per annum. The cement capacity which was 62.05 million tonnes in 1992-93 rose to 67.03 million tonnes in 1993-94. Around 7.85 million tonnes of large cement capacity was proposed to be added during 1994-95, of which 5.50 million tonnes was to be operational in 1994-95 and the remaining 2.35 million tonnes would be operational in 1995-96. Cement consumption may reach a level of 84.91 million tonnes by 2000 AD.

Table 2.1

Cement Industry:

Recent Trends: 1989-90 to 1993-94

<table>
<thead>
<tr>
<th>Sr. Year</th>
<th>Installed Capacity (in ................. Million Tones)</th>
<th>Production</th>
<th>Dispatches</th>
<th>Capacity Utilisation (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1989-90</td>
<td>57</td>
<td>42.9</td>
<td>40.9</td>
<td>81</td>
</tr>
<tr>
<td>2. 1990-91</td>
<td>59.1</td>
<td>45.8</td>
<td>45.6</td>
<td>84</td>
</tr>
<tr>
<td>3. 1991-92</td>
<td>61.1</td>
<td>50.6</td>
<td>50.5</td>
<td>88</td>
</tr>
<tr>
<td>4. 1992-93</td>
<td>64.8</td>
<td>50.7</td>
<td>50.7</td>
<td>85</td>
</tr>
<tr>
<td>5. 1993-94</td>
<td>64.8</td>
<td>57.0</td>
<td>54.2</td>
<td>88</td>
</tr>
</tbody>
</table>

56
Mini cement plants were setup at the Government's insistence during the early 1980s due to the shortage of cement. India has been one of the pioneering countries as far as mini cement plants sprouted up around restricted and scattered limestone deposit areas. Because of low overheads and excise duty, the cement manufactured by mini plants is much cheaper. Mini plants enjoy a concession in excise duty to the extent of Rs. 75 per bag. However, these plants depend on traditional technology, leading to poor quality of cement.

Cement machinery segment is witnessing a boom. This segment is capable of manufacturing and supplying complete cement plants based on the dry process and pre-calcination technology for capacities up to 5,000 tonnes per day. There are 18 units in the organised sector for the manufacturing of complete cement plants with total installed capacity worth Rs. 2,000 million per annum. The total production rose from Rs. 1,550 million in 1992-93 to Rs. 1,700 million in 1993-94.

In spite of some problems, the cement industry is at present well placed. It took 12 years to double the capacity to 29 million tonnes in 1992. Since then, up to the end of March-1994, it had gone up to 96.5 million tonnes - an increase of 140% like wise in 1993-94 consumption had gone up by 6% after a 1% fall in the previous year. Of course, Government consumption has come down from 50% in the early 1980s to about 20%.

The cement industry has great future. However, certain measures are needed to step up the place of growth of cement industry. There is need for accelerating the building of concrete roads, and multi purpose hydro projects. The shortage of dwelling units is currently at 35 million. Construction of houses should be a priority area.
From the humble beginning of 31,000 tonnes in 1988, cement exports reached a level of 1.314 million tonnes in 1993-94 (clinker exports were of the order of 1.54 million tonnes.). The industry is expected to export cement and clinker of four to five million tonnes in 1994-95. Exports may reach the level of 10 million tonnes by 2000 AD.

At present, India's contribution to the world cement production is five percent till 1992-93 in the global cement trade of 70 million tonnes. In fact, one may conclude that India's share was practically negligible (1.15 million tonnes). But the situation has changed now. Exports have gone up to 3.17 million tonnes during 1994-95 and the government has fixed a target of five million tonnes export by 1996-97. A major portion of the export constitute clinker exports. But again, in order to improve the export scenario an urgent development of the port facility is needed.

Currently, India is exporting cement to Bangladesh, Srilanka, Nepal, the United Arab Emirates, Maldives, the Philippines, Yemen, Dubai, Qatar and a few other countries.

Table 2.2

Cement Industry:
Cement - Clinker Exports: 1989-90 to 1994-95

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Year</th>
<th>Cement (in thousands tonnes)</th>
<th>Clinker</th>
<th>Total (in thousands tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1989-90</td>
<td>153.0</td>
<td>Marginal</td>
<td>153.0</td>
</tr>
<tr>
<td>2</td>
<td>1990-91</td>
<td>265.3</td>
<td>Marginal</td>
<td>265.3</td>
</tr>
<tr>
<td>3</td>
<td>1991-92</td>
<td>359.9</td>
<td>Marginal</td>
<td>359.9</td>
</tr>
<tr>
<td>4</td>
<td>1992-93</td>
<td>833.6</td>
<td>317.3</td>
<td>1150.9</td>
</tr>
<tr>
<td>5</td>
<td>1993-94</td>
<td>1300.9</td>
<td>1511.0</td>
<td>2811.9</td>
</tr>
<tr>
<td>6</td>
<td>1994-95</td>
<td>3.17 million</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Provisional
The international cement trade is mostly in bulk for which India has virtually no facilities either in the cement plants or in transportation and handling. The infrastructural facilities in our ports are inadequate for receipts, storage, handling, loading and unloading of cement. For instance, Japan loads over 10,000 tonnes of cement clinker a day as compared to India's 3000 tonnes a day.

The availability and movement of coal has been a perennial problem of the cement industry. 90% of coal deposits are located in four states in Bihar, Orissa, West Bengal and Madhya Pradesh. Also, barring Madhya Pradesh none of the other states have any sizable limestone deposits. Thus, coal has to be hauled over very long distances.

Coal requirement by the industry today stands at 13 million tonnes, 6% of the total coal production, cement manufacturers are left at the mercy of traders in coal who charge exorbitant prices. The coal requirements may go up to 21 million tonnes in 1996-97 and 25 million tonnes by 2000 AD.

Transportation, whether by rail, Road or Sea plays a crucial role in the marketing and pricing of cement. Transport costs have gone up by over 100% during last ten years. The freight for transporting cement from distance of 750 Km. was increased from Rs. 134 per tone in May-1982 to Rs. 404 in April 1993. This was further stepped up to Rs. 432 by the railway budget for 1995-96.

The central budget for 1995-96 has not offered any sops to the cement industry to build up additional production capacity. There is no encouragement for new investors to enter this segment. On the other hand, excise duty on cement has been increased from Rs. 300 to Rs. 350 per tone.
## Table 2.3

### Change in Excise Duty on Cement (Large Plant): 1982 to 1995

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Rate</th>
<th>Excise Duty per ton of cement (value in Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1982</td>
<td>Specific</td>
<td>135.00</td>
</tr>
<tr>
<td>2</td>
<td>1983</td>
<td>Specific</td>
<td>205.00</td>
</tr>
<tr>
<td>3</td>
<td>1985</td>
<td>Specific</td>
<td>225.00</td>
</tr>
<tr>
<td>4</td>
<td>1988</td>
<td>Rs. 205 + 5% surcharge on basic excise duty</td>
<td>215.25</td>
</tr>
<tr>
<td>5</td>
<td>1990</td>
<td>Rs. 215 + 5% surcharge on basic excise duty</td>
<td>225.75</td>
</tr>
<tr>
<td>6</td>
<td>1991</td>
<td>Rs. 215 + 5% surcharge on basic excise duty</td>
<td>236.50</td>
</tr>
<tr>
<td>7</td>
<td>1992</td>
<td>Rs. 290 + 5% surcharge on basic excise duty</td>
<td>333.50</td>
</tr>
<tr>
<td>8</td>
<td>1993</td>
<td>Specific</td>
<td>330.00</td>
</tr>
<tr>
<td>9</td>
<td>1995</td>
<td>Specific</td>
<td>350.00</td>
</tr>
</tbody>
</table>

Source: Cement Manufacturers’ Association.

According to the Cement Manufacturer’s Association (CMA), an investment of Rs. 4,00,000 million will be needed by the industry in the next ten years in order to double its capacity to meet the country’s demand. Another Rs. 1,50,000 million would be required for expansion and modernisation.

The cement industry has taken rapid strides in areas like energy conservation, mining, cement manufactures and environment protection, thanks to efforts made by the National Council for Cement and Building Materials (NCEM) and other research organisations.

As a result of large scale modernisation and technology upgradation the industry is able to produce cement of high quality comparable to the best in the world. During the last two decades, the industry did experience some significant technological changes. These include:
- Introduction of pre-calcination technology
- Computer controlled kiln operation
- Pre-blending of Lime-stone/Coal and
- On line quality control systems.

These technological changes have resulted in reduction in the average energy consumption.

The excise and transport burden on cement needs to be pruned particularly on the present context of liberalisation and also the need for boosting exports. In respect of a vital input like cement, any undue cost escalation needs to be checked.

**Prices:** Prices have been continuously increasing since the days of deregulation. Prices enjoyed by the manufacturers during the year were perhaps the highest ever since the days of decontrol. It started to rise since December-1994, and reached its peak at a level of Rs. 155 per 50 Kg bag. Just before the monsoon and thereafter reduced during the monsoon though not drastically.

Even today, prices are ruling reasonable high. The very recent price trend shows that the western region is as usual high with Rs. 170/175 per bag at the retail level. Prices in the other region also at a reasonably higher level. This not only reflects the stable health of the industry but also speaks of higher demand and better realisation as a result.

2.16.2 **Pharmaceutical Industry:**

There is one thing common between economics and drugs. In economics problems remain the same but their solutions keep changing with the passage of time. The menace of unemployment, inflation etc. were tracked in one way a quarter century ago but those solutions would not work today. Similarly diseases like malaria, T.B. etc. cannot be cured to day by drugs which were highly successful a quarter century ago. For the same diseases, new drugs have to be evolved through research and development.
The national objective of "Health for all by 2000 A.D." seems non-achievable during the next five years because the population which needs to be covered is almost double of that which currently has access to health care.

There is need to send doctors to rural and semi-rural areas. Even if the doctors are made available in this area, distribution of medicines in far off area is no easy task besides being expensive. The pharmaceutical industry certainly has an interest in distributing medicines to rural areas provided it is allowed to cover costs for which prices will need to be raised. That is something which the official agencies in this industry are closely watching. The government is willing to grant adequate profitability to pharmaceutical companies but it fears to be blamed for allowing the companies to 'Profiteer.' The debate on profitability has gone on for years in this country. Table No. 2.4 shows profitability trends from 1969-70 to 1993-94.
Table 2.4

Pharmaceutical Industry:

Profitability Trend: 1969-70 to 1993-94

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Year</th>
<th>Profit before tax as % of sales</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1969-70</td>
<td>15.47</td>
<td>Hathi Committee Report</td>
</tr>
<tr>
<td>2</td>
<td>1974-75</td>
<td>10.70</td>
<td>RBI Bulletin Covering</td>
</tr>
<tr>
<td>3</td>
<td>1977-78</td>
<td>11.70</td>
<td>drugs and non-drugs</td>
</tr>
<tr>
<td>4</td>
<td>1980-81</td>
<td>8.60</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1982-83</td>
<td>7.5</td>
<td>NCAER Study</td>
</tr>
<tr>
<td>6</td>
<td>1983-84</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1984-85</td>
<td>5.8</td>
<td>A.F. Eerguson</td>
</tr>
<tr>
<td>8</td>
<td>1985-86</td>
<td>4.5</td>
<td>OPPI Estimates</td>
</tr>
<tr>
<td>9</td>
<td>1986-87</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1987-88</td>
<td>3.5</td>
<td>OPPI Surveys</td>
</tr>
<tr>
<td>11</td>
<td>1988-89</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1989-90</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1990-91</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1991-92</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>1992-93</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>1993-94</td>
<td>4.4</td>
<td></td>
</tr>
</tbody>
</table>

It is apparent that the industry had reasonably high profits in the seventies but the eighties hit the industry hard. The nadir came in 1991-92 when the Indian economy was dancing on the verge of bankruptcy. Thanks to the U turn in economy policy since July-1991, the pharmaceutical industry has seen modest rise in profitability. Where as Hathi committee had put the profit before tax as a percentage of sales in 1969-70 at 15.47 %. This ratio dropped to 1.00 % in 1991-92. Mercifully, it rose to 4.4 % in 1993-94 and may show a further 1 % point rise in 1994-95.

A natural fall-out of falling profits was the absence of fresh investments in the pharmaceutical industry. Dr. Anil S. Mehta, in his presidential address in two days seminar held in New Delhi on April 21 & 22 1995 on Health care was an invigorating experience as it brought the government, the
industry and the experts on the same platform for exchange of views in a free and frank manner, said that "there has been negligible additional investments in production facilities for the domestic sector in the last 15 years". Now that the profits have started looking up modestly, the industry should lose no time in adding to existing capacity.

Going by international standards, the pharmaceutical industry of our country has a poor ranking in 1990. The annual per capita expenditure on medicines was three dollars - the lowest in the world except for Bangladesh and Mozambique which had per capital annual expenditure of two dollars each. Japan ranked the highest with annual per capital expenditure of 412 dollars. Table No. 2.5 shows we have to go a long way to catch up with the rich countries.

Table 2.5

Pharmaceutical Industry:

Annual Drug Expenditure (Per capita): 1990

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Country</th>
<th>Expenditure (US Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>412</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>222</td>
</tr>
<tr>
<td>3</td>
<td>United States</td>
<td>191</td>
</tr>
<tr>
<td>4</td>
<td>Canada</td>
<td>124</td>
</tr>
<tr>
<td>5</td>
<td>United Kingdom</td>
<td>97</td>
</tr>
<tr>
<td>6</td>
<td>Norway</td>
<td>89</td>
</tr>
<tr>
<td>7</td>
<td>Costa Rica</td>
<td>37</td>
</tr>
<tr>
<td>8</td>
<td>Chile</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>Mexico</td>
<td>28</td>
</tr>
<tr>
<td>10</td>
<td>Turkey</td>
<td>21</td>
</tr>
<tr>
<td>11</td>
<td>Morocco</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>Brazil</td>
<td>16</td>
</tr>
<tr>
<td>13</td>
<td>Philippines</td>
<td>11</td>
</tr>
<tr>
<td>14</td>
<td>Ghana</td>
<td>7</td>
</tr>
<tr>
<td>15</td>
<td>China</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>Pakistan</td>
<td>7</td>
</tr>
<tr>
<td>17</td>
<td>Indonesia</td>
<td>5</td>
</tr>
<tr>
<td>18</td>
<td>Kenya</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>India</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>Bangladesh</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>Mozambique</td>
<td>2</td>
</tr>
</tbody>
</table>

---
Easy availability of medicines for the common man at affordable prices has been the main motto of India's drug policy. Of course, this objective was sought to be achieved through the private sector, although the public sector units were originally catalysts for the growth of the pharmaceutical industry.

The Rs. 70,000 million pharmaceutical industry has about 9000 units out of which around 250 are of large scale (including five in the public sector) accounting for 70 percent of total production.

The financial health of most pharmaceutical companies is not sound. They are diversifying into non-pharmaceutical activities for survival. Besides, they are also increasingly turning to export market for better returns. The domestic pharmaceutical industry has been growing at a rate of around 15 percent per annum which is much higher than that recorded by other industries. The international average is around eight percent only.

The Indian drugs and pharmaceutical industry owes its phenomenal growth during the last two decades to the Indian Patent Act of 1970 which exempted the pharmaceuticals and agrochemicals from the purview of patents. The measure is meant to keep the prices of essential and life-saving drugs within the reach of the common man. India today ranks first among all the developing countries in the drugs and pharmaceutical sector.

Today, there are about 600 bulk drug manufacturers in the country of which 250 are in Andhra Pradesh. Hyderabad, with a large concentration of drug manufacturers, has come to be known as the 'drug capital' of India.

Prior to the announcement of the new industrial policy in 1991, almost the entire pharmaceutical sector (except for some intermediate drugs) was totally delicensed through the
Delicensed Registration Scheme 1985 and the Exempted Industries Registration Scheme of 1988. With the abolition of these two schemes, the drug industry has been temporarily placed under compulsory licensing.

The drug industry has been complaining about the constraints of price control and has asked for the control mechanism to be made more realistic and flexible so as to take care of the rising cost of production and for encouraging new investment.

The Drug Policy of 1986 has been modified by the New Drug Policy of September 1994. Out of the 142 items in the price control list, only 74 medicines are retained. The new policy has raised the ceiling of profit by an additional four percent over the 14 percent of the net worth and 22 percent of the capital employed. The policy proposed one per cent cess on production of drugs and pharmaceuticals to promote domestic R & D. By abolishing controls for units with turnover up to Rs. 40 million, the policy favours the large against the medium and small units.

Table 2.6

Pharmaceutical Industry:

Trends in production of Bulk Drugs and Formulations: 1950-51 to 1994-95

<table>
<thead>
<tr>
<th>Sr. Year</th>
<th>Bulk Drugs</th>
<th>Change over previous year</th>
<th>Formulations</th>
<th>Change over previous year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Rs. in million)</td>
<td>(percentage)</td>
<td>(Rs. in million)</td>
<td>(percentage)</td>
</tr>
<tr>
<td>1. 1950-51</td>
<td>10.0</td>
<td>NA</td>
<td>100.0</td>
<td>NA</td>
</tr>
<tr>
<td>2. 1970-71</td>
<td>500.0</td>
<td>NA</td>
<td>2500.0</td>
<td>NA</td>
</tr>
<tr>
<td>3. 1980-81</td>
<td>2400.0</td>
<td>10.1</td>
<td>12000.0</td>
<td>10.0</td>
</tr>
<tr>
<td>4. 1985-86</td>
<td>4160.0</td>
<td>4.8</td>
<td>19450.0</td>
<td>9.8</td>
</tr>
<tr>
<td>5. 1986-87</td>
<td>4580.0</td>
<td>14.6</td>
<td>21400.0</td>
<td>34.0</td>
</tr>
<tr>
<td>6. 1987-88</td>
<td>4800.0</td>
<td>16.4</td>
<td>23500.0</td>
<td>8.8</td>
</tr>
<tr>
<td>7. 1988-89</td>
<td>5500.0</td>
<td>14.1</td>
<td>31500.0</td>
<td>12.3</td>
</tr>
<tr>
<td>8. 1989-90</td>
<td>6400.0</td>
<td>23.3</td>
<td>38400.0</td>
<td>25.0</td>
</tr>
<tr>
<td>9. 1990-91</td>
<td>7300.0</td>
<td>27.8</td>
<td>48000.0</td>
<td>25.0</td>
</tr>
<tr>
<td>10. 1991-92</td>
<td>9000.0</td>
<td>14.8</td>
<td>60000.0</td>
<td>15.0</td>
</tr>
<tr>
<td>11. 1992-93</td>
<td>11500.0</td>
<td>15.0</td>
<td>69000.0</td>
<td>15.0</td>
</tr>
<tr>
<td>12. 1993-94</td>
<td>13200.0</td>
<td>15.0</td>
<td>79350.0</td>
<td>15.0</td>
</tr>
</tbody>
</table>

66
Table 2.7
Pharmaceutical Industry:
Investment

<table>
<thead>
<tr>
<th>Sr. Year</th>
<th>Investment (Rs. in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1950-51</td>
<td>240</td>
</tr>
<tr>
<td>2. 1965</td>
<td>1400</td>
</tr>
<tr>
<td>3. 1970-71</td>
<td>1500</td>
</tr>
<tr>
<td>4. 1982</td>
<td>6000</td>
</tr>
<tr>
<td>5. 1988</td>
<td>8000</td>
</tr>
<tr>
<td>6. 1994</td>
<td>14800</td>
</tr>
</tbody>
</table>

Table 2.8
Pharmaceutical Industry:
Export

<table>
<thead>
<tr>
<th>Sr. Year</th>
<th>Investment (Rs. in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1950-51</td>
<td>8.0</td>
</tr>
<tr>
<td>2. 1980-81</td>
<td>463.8</td>
</tr>
<tr>
<td>3. 1986</td>
<td>1940.0</td>
</tr>
<tr>
<td>4. 1989-90</td>
<td>6647.0</td>
</tr>
<tr>
<td>5. 1992</td>
<td>11450.0</td>
</tr>
<tr>
<td>6. 1993-94</td>
<td>18400.0</td>
</tr>
</tbody>
</table>

Table 2.9
Pharmaceutical Industry:
Expenditure on R & D

<table>
<thead>
<tr>
<th>Sr. Year</th>
<th>Investment (Rs. in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1970-71</td>
<td>40</td>
</tr>
<tr>
<td>2. 1980-81</td>
<td>60</td>
</tr>
<tr>
<td>3. 1992</td>
<td>700</td>
</tr>
<tr>
<td>4. 1995</td>
<td>1000</td>
</tr>
</tbody>
</table>
There will be automatic approval of bio-technical agreements with foreign companies. Those companies with equity up to 51 percent will be on per with Indian companies. They will be able to manufacture as well as import bulks and formulations. There is total delicensing of manufacture of medicines except five bulks used in the National Health Plan and those having recombinant DNA and cell/tissue targeted elements. The new policy depends, to a large extent, on the market forces to control prices.

The other salient features of the new drug policy are:
- Automatic approval of foreign technology agreements;
- Higher rate of return to be allowed for price controlled drugs;
- Controls may be reimposed if prices rise too rapidly;
- National Drug Authority to be set up to monitor quality control;
- Ceiling prices for standard pack sizes of price controlled formulations;
- R & D incentives to be announced later;
- National Pharmaceutical Authority to fix prices. Time limit of two months for formulations and four months for bulk drugs;
- New department in health ministry to focus on ayurvedic, unani, sidha and homeopathic medicines and
- Special legislation to impose cess of one percent on production of drugs and pharmaceuticals to promote research and development.

Over three decades ago, the Health Survey and Planning Committee (Mudaliar Committee) had recommended that around 10 percent of the plan outlays should be on health care. However, this percentage had gradually declined from a low of 3.3 percent in the first plan to an even lower projected 1.7 percent for the
eighth plan (1992-97). Also, the rural areas have been neglected, though not intentionally. With meager returns and high market penetration costs, the drug industry is not able to reach 70 percent of the population. The industry is not in a position to invest in additional manpower to create demand in the rural areas. Given the present pricing policies, the industry is not able to invest for additional production to meet rural needs.

Industry investment in bulk drugs has grown from Rs. 260 million in 1947 to Rs. 10,000 million in 1992-93. Drug production value has increased from Rs. 100 million in 1947 to Rs. 16,500 million in 1993-94.

In the recent years, 70 percent of the total requirements of bulk drugs are met through indigenous production. This is of course a major achievement.

From being a net importer, the country emerged as a net exporter. The total bulk drugs and formulations exported in 1993-94 amounted to Rs. 17,180 million (bulk drugs valued at Rs. 10,090 million) which is nearly 21 percent of the total output valued at Rs. 82,200 million. Both bulk drugs and formulations have figured in the industry's exports.

The major drugs exported include ampicillin preparations to Western European, Asian and African countries. Other exports include sulphamethoxazole, paracetamol preparations, amoxycillin and trimethoprim to the USA.

The formulations segment is a highly competitive one. Exports from this segment are mainly to countries in Africa, Vietnam and of late to Russia. India has not been successful in boosting exports of formulations. Russia is a market with great potential. But, Russia is contemplating to impose duties on formulations. However, the domination of China is on the decline.
The R & D wing of the industry continues to be weak. There are about 1200 R & D centres in India, but the expenditure on R & D is just about one to two per cent of the turnover as compared to 12 per cent in the USA and about 5 per cent in Japan. There are only 139 approved R & D centres in the country; almost 90 percent of them are in the private sector.

It has been estimated that an investment of Rs. 500 to Rs. 600 million is needed to set up a research centre with an annual recurring expenditure of Rs. 250 to 300 million.

The existing research, mostly restricted to process development, will have to shift to basic research which definitely calls for more expenditure, a long gestation period and the uncertainty of confirmed success in the discovery of a patented molecule.

The inter-ministerial committee was constituted on October 26, 1994 to suggest measures to boost R & D in the drug industry. The committee has made some suggestions. These include:

- A graded 200 per cent weighted tax deduction in income tax for R & D expenses instead of a uniform rate;
- Granting increased benefit to companies investing a higher proportion of their turnover in R & D;
- Extension of MODVAT facilities for a range of items used in R & D besides the ten-year price control exemption available to new drugs produced indigenously;
- R & D facilities in the drug industry (private and public) to be treated on par with universities and national research centres. They are to be granted full exemption from customs duty on imports of capital equipment, consumables, chemicals, biological and necessary spare parts;
Increased government funding for collaborative research (with companies) for new drug discoveries to be considered after other components of the new drug policy like implementation of one per cent cess and setting up of the National Drug Authority are in place.

We have to encourage consortia for developing R & D. Joint ventures could be advantageous to both parties, with the foreign collaborator providing the technology (patented product) and the Indian counter part manufacturing it for them with cheaper inputs in India. The Organisation of Pharmaceutical Producers of India (OPPI) and the Indian Drug Manufactures Association (IDMA) had recommended special status for companies to undertake R & D in pharmaceuticals. They suggested a minimum spending of five per cent of their turnover in R & D in India.

The market is flooded with sub-standard/spurious drugs. In some states like Maharashtra, the Food and Drug Administration are doing a commendable job by listing periodically such drugs along with all the relevant details.

The problem of spurious drugs has to be solved on a war footing. The government has to concentrate on inspecting production facilities as well as the related procedure in the production units. Adherence to good manufacturing practices and tight quality control are critical to drugs being safe and effective. The task is becoming difficult because of collusion between the inspecting staff and the producers.

The international pharmaceutical giants are drawing up ambitious plans to undertake Research and Development and produce new generation drugs under a favourable environment created by the new drug policy.

In view of the GATT agreement, the drug industry has to change its perceptions and goals. Future stress should be on
generic bulk drugs where the patent has expired. The industry should also go in for massive R & D efforts.

In the post - GATT era, the small players have to face tough time. The bill on patents is likely to lead to a fundamental restructuring of the industry. The multinationals may benefit the most. The industry has to concentrate on non-patented areas.
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2. For various definitions of Working Capital based on Net Concept. See:
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Accountant, Melbourne, Volume, XXIX, No. 6 (June 1959).


8. Ibid. p. 384.


18. Person Hunt et al. Basic Business Finance Text & Cases,


[Note I. Reference no. 1, 2 and 3 are quoted by H. L. Varma, Management of working capital, deep and deep publications New Delhi, 1989, pp 25-28 and same are used here.

II Reference no. 6, 9 and 10 are quoted by N.K. Sharma, Working Capital Management in private sector, Prateeksha Publications Jaipur 1988 pp 13-15 and same are used here.

III Reference 4 and 15 to 22 are quoted by S.C. Bardia Working Capital Management Pointer Publishers Jaipur 1988 pp 13-29 and same are used here.]