Module – 1
Working Capital Management

Introduction

Working capital management is also one of the important parts of the financial management. It is concerned with short-term finance of the business concern which is a closely related trade between profitability and liquidity. Efficient working capital management leads to improve the operating performance of the business concern and it helps to meet the short-term liquidity. Hence, study of working capital management is not only an important part of financial management but also are overall management of the business concern.

Working capital is described as the capital which is not fixed but the more common uses of the working capital is to consider it as the difference between the book value of current assets and current liabilities.

Meaning:

Working Capital is a part of the capital which is needed for meeting day to day requirement of the business concern. For example, payment to creditors, salary paid to workers, purchase of raw materials etc., normally it consists of recurring in nature. It can be easily converted into cash. Hence, it is also known as short-term capital.

Definitions:

According to the definition of **Mead, Baker and Malott,** "Working Capital means Current Assets".

According to the definition of **J.S.Mill,** "The sum of the current asset is the working capital of a business".

According to the definition of **Weston and Brigham,** "Working Capital refers to a firm's investment in short-term assets, cash, short-term securities, accounts receivables and inventories".

According to the definition of **Bonneville,** "Any acquisition of funds which increases the current assets, increase working capital also for they are one and the same".

According to the definition of **Shubin,** "Working Capital is the amount of funds necessary to cover the cost of operating the enterprises".

According to the definition of **Genestenberg,** "Circulating capital means current assets of a company that are changed in the ordinary course of business from one form to another, for example, from cash to inventories, inventories to receivables, receivables to cash".

Concept of Working Capital

Working capital can be classified or understood with the help of the following two important concepts.

A. Gross Working Capital

Gross Working Capital is the general concept which determines the working capital concept. Thus, the gross working capital is the capital invested in total current assets of the business concern.

Gross Working Capital is simply called as the total current assets of the concern.

Gross Working Capital = Current Assets

B. Net Working Capital

Net Working Capital is the specific concept, which, considers both current assets and current liability of the concern.
Net Working Capital is the excess of current assets over the current liability of the concern during a particular period.
If the current assets exceed the current liabilities it is said to be positive working capital; it is reverse, it is said to be Negative working capital.

Net Working Capital = Current Assets – Current Liabilities

Nature of Working Capital:

The nature of working capital is as discussed below:

1. It is used for purchase of raw materials, payment of wages and expenses.
2. It changes form constantly to keep the wheels of business moving.
3. Working capital enhances liquidity, solvency, creditworthiness and reputation of the enterprise.
4. It generates the elements of cost namely: Materials, wages and expenses.
5. It enables the enterprise to avail the cash discount facilities offered by its suppliers.
6. It helps improve the morale of business executives and their efficiency reaches at the highest climax.
7. It facilitates expansion programmes of the enterprise and helps in maintaining operational efficiency of fixed assets.

Significance / Need for Working Capital:

Working capital plays a vital role in business. This capital remains blocked in raw materials, work in progress, finished products and with customers.

The needs for working capital are as given below:

1. Adequate working capital is needed to maintain a regular supply of raw materials, which in turn facilitates smoother running of production process.
2. Working capital ensures the regular and timely payment of wages and salaries, thereby improving the morale and efficiency of employees.
3. Working capital is needed for the efficient use of fixed assets.
4. In order to enhance goodwill a healthy level of working capital is needed. It is necessary to build a good reputation and to make payments to creditors in time.
5. Working capital helps avoid the possibility of under-capitalization.
6. It is needed to pick up stock of raw materials even during economic depression.
7. Working capital is needed in order to pay fair rate of dividend and interest in time, which increases the confidence of the investors in the firm.

Importance of Working Capital:

Working capital is a vital part of a business and can provide the following advantages to a business:

1. Higher return on capital: Firms with lower working capital will post a higher return on capital. Therefore, shareholders will benefit from a higher return for every dollar invested in the business.

2. Improved credit profile and solvency: The ability to meet short-term obligations is a pre-requisite to long-term solvency. And it is often a good indication of counterparty's credit risk. Adequate working capital management will allow a business to pay on time its short-term obligations. This could include payment for a purchase of raw materials, payment of salaries, and other operating expenses.

3. Higher profitability: According to some researchers, the management of account payables and receivables is an important driver of small businesses' profitability.

4. Higher liquidity: A large amount of cash can be tied up in working capital, so a company managing it efficiently could benefit from additional liquidity and be less dependent on external financing. This is especially important for smaller businesses as they typically have limited access to external funding sources. Also, small businesses often pay their bills in cash from earnings so efficient working capital management will allow a business to better allocate its resources and improve their cash management.

5. Increased business value: Firms with more efficient working capital management will generate more free cash flows which will result in higher business valuation and enterprise value.

6. Favorable financing conditions: A firm with a good relationship with its trade partners and paying its suppliers on time will benefit from favorable financing terms such as discount payments from its suppliers and banking partners.

7. Uninterrupted production: A firm paying its suppliers on time will also benefit from a regular flow of raw materials, ensuring that the production remains uninterrupted and clients receive their goods on time.

8. Ability to face shocks and peak demand: Efficient working capital management will help a firm to survive through a crisis or ramp up production in case of an unexpectedly large order.

Classification of Working Capital:

Working capital may be of different types as follows:

(a) Gross Working Capital: Gross working capital refers to the amount of funds invested in various components of current assets. It consists of raw materials, work in progress, debtors, finished goods, etc.

(b) Net Working Capital: The excess of current assets over current liabilities is known as Net working capital. The principal objective here is to learn the composition and magnitude of current assets required to meet current liabilities.

(c) Positive Working Capital: This refers to the surplus of current assets over current liabilities.

(d) Negative Working Capital: Negative working capital refers to the excess of current liabilities over current assets.

(e) Permanent Working Capital: The minimum amount of working capital which even required during the dullest season of the year is known as Permanent working capital.

(f) Temporary or Variable Working Capital: It represents the additional current assets required at different times during the operating year to meet additional inventory, extra cash, etc.

Components of Working Capital:

Working capital is composed of various current assets and current liabilities, which are as follows:

(A) Current Assets: These assets are generally realized within a short period of time, i.e. within one year.

Current assets include:

- (a) Inventories or Stocks
  - (i) Raw materials
  - (ii) Work in progress
  - (iii) Consumable Stores
  - (iv) Finished goods
- (b) Sundry Debtors
- (c) Bills Receivable
- (d) Pre-payments

(e) Short-term Investments
(f) Accrued Income and
(g) Cash and Bank Balances

(B) Current Liabilities: Current liabilities are those which are generally paid in the ordinary course of business within a short period of time, i.e. one year.

Current liabilities include:

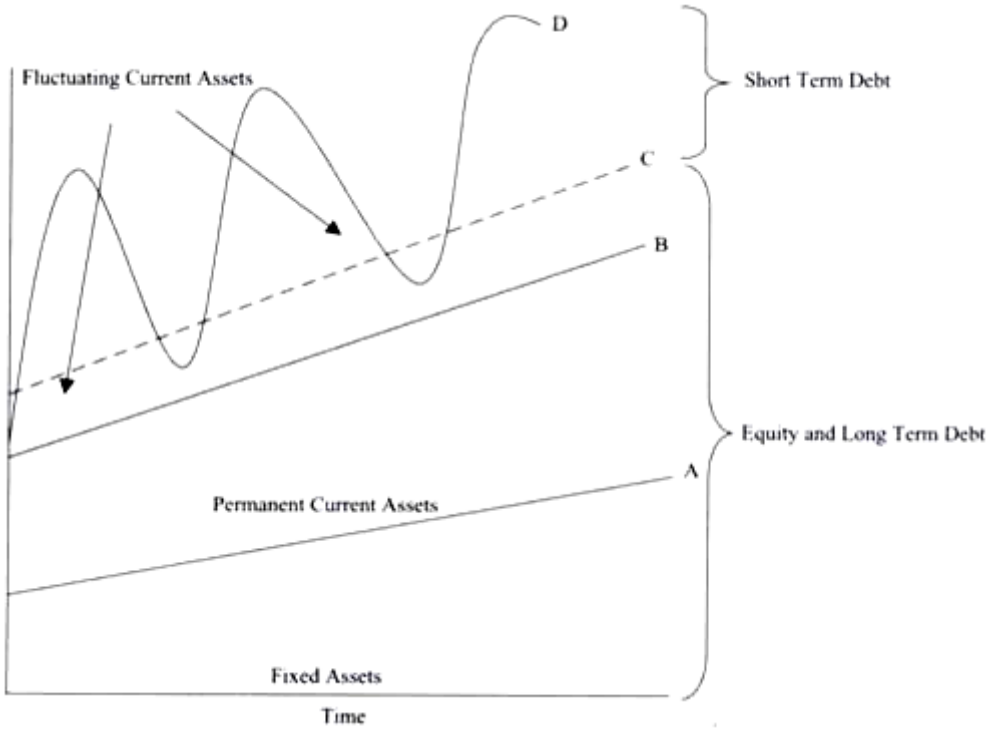
(a) Sundry Creditors
(b) Bills Payable
(c) Accrued Expenses
(d) Bank Overdrafts
(e) Bank Loans (short-term)
(f) Proposed Dividends
(g) Short-term Loans
(h) Tax Payments Due

Working Capital Investment Policies / Approaches to Financing Current Assets

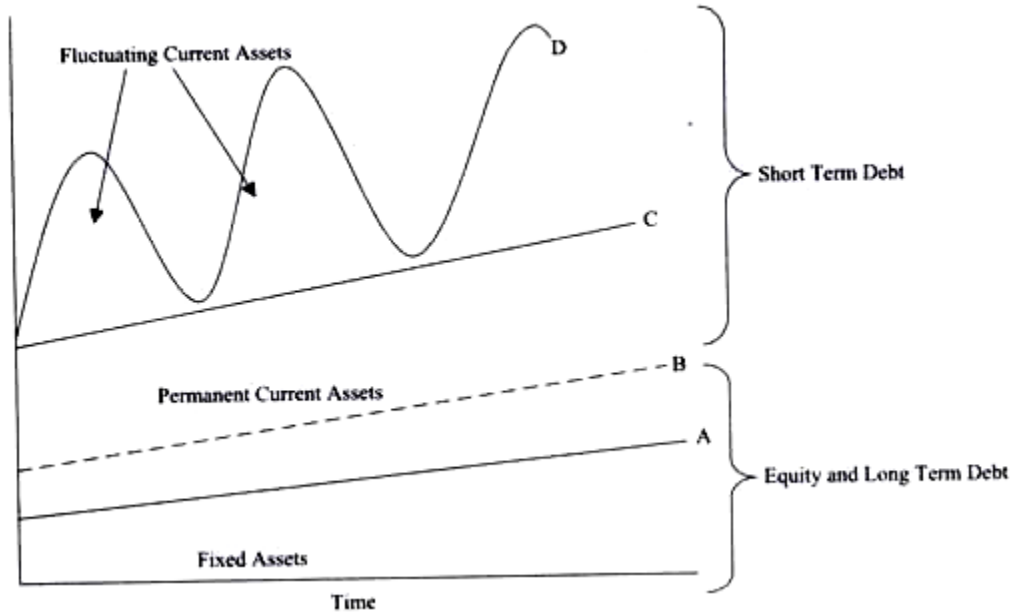
Working capital financing policy basically deals with the sources and the amount of working capital that a company should maintain. A firm is not only concerned about the amount of current assets but also about the proportions of short-term and long-term sources for financing the current assets. There are several working capital investment policies a firm may adopt after taking into account the variability of its cash inflows and outflows and the level of risk.

1. Conservative Policy: As the name suggests, this policy tries to avoid the risk involved in financing of current assets. Here, relatively high proportions of long-term sources are to be used for financing current assets. The firm not only matches the current assets with current liabilities but also keeps some excess amount to meet any uncertainty.

This is the lowest risk working capital policy and fails to ensure optimum utilization of funds. Hence it cuts down the expected returns of the shareholders. This policy is illustrated below. Line A denotes the fixed assets and Line B denotes the permanent working capital, which is financed through long-term sources. Certain portion of fluctuating current assets, which is shown by dashed Line C, is also financed by long-term sources. Under this policy some part of fluctuating current assets is financed through short-term sources.

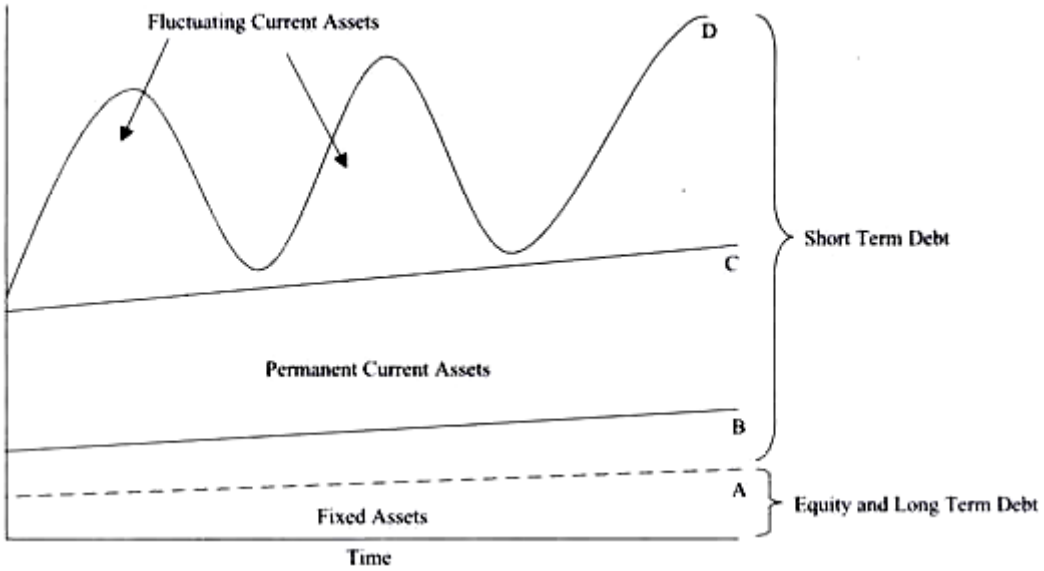


2. Aggressive Policy: Aggressive working capital financing policy is a risky policy that requires maximum amount of investment in current assets. Fluctuating as well as permanent current assets under this policy will be financed through short-term debt. In this policy debt is collected on time and payments to the creditors are made as late as possible. This policy has been illustrated below. According to this approach long-term sources are used to finance the fixed assets, which are shown by Line A; but a portion of permanent current assets, shown by the dotted Line B, is also financed through long-term sources. The remaining part of permanent current assets, depicted by Line C, and the entire amount of fluctuating current assets, shown by the curved Line D, are financed by short-term debt.



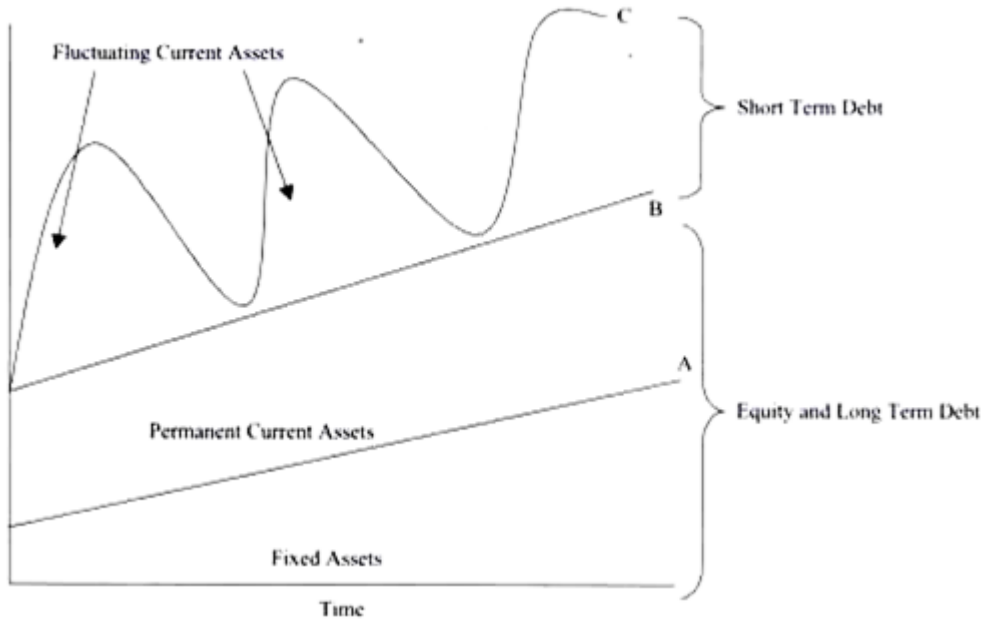
3. Highly Aggressive Policy: This is a highly risky policy for financing the working capital. As per this policy, even some part of fixed assets is financed through short-term sources. Excessive reliance on short-term sources makes this policy highly risky. This policy has been illustrated below. A major proportion of fixed assets as shown by dotted Line A are financed

through long-term sources and the remaining part of the fixed assets are financed by short-term sources—shown by Line B. Short-term sources are also used for financing permanent current assets—Line C; as well as fluctuating current assets as shown by the curved Line D.



4. Hedging Policy: One of the policies by which a firm finances its working capital needs is the hedging policy, also known as matching policy. This policy works in an arrangement where the current assets of the business are used perfectly to match the current liabilities. As per this approach, fixed and permanent current assets are financed through long-term sources and fluctuating current assets are financed through short-term sources. This policy is a medium risk proposition and requires a good amount of attention. For example, if a bank loan is due to be paid after six months, the company will ensure that sufficient amount of cash will be available to repay the loan on the date of maturity even though it may or may not currently have sufficient cash.

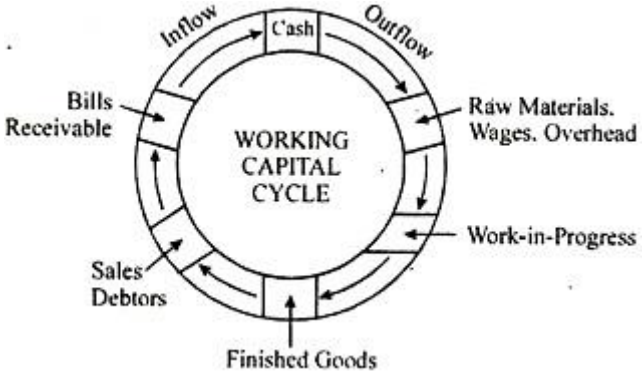
In case of a growth firm, the amount of fixed assets and permanent current asset go on increasing with the passage of time but the volume of fluctuating current assets change with the change in production level. In the following figure, Line A and Line B is upward slopped indicating that they go on increasing with the passage of time and as per hedging principle they are financed through long-term sources like equity and long-term debt. Fluctuating current assets, which are shown by the curved Line C, should be financed through short term sources.



Operating Cycle Approach / Working Capital Cycle

Every business organisation needs adequate working capital because the conversion of cash into finished goods to debtors and back to cash is not instantaneous. It takes some time. For example, in a manufacturing firm, cash is used to purchase raw materials. They are not consumed immediately. They remain some time in stores in order to ensure smooth production and to protect the firm against the risk of non-availability of raw materials in future. Then they are issued from stores to production centre for conversion. This conversion also generally takes some time. When certain expenses such as wages and overheads are incurred on it, it gets itself converted into semi-finished goods or work-in-progress and, finally, into finished goods. These finished goods will have to be stored for some time before sale. Next, finished goods are sold to customers which may take the form of cash or receivables/debtors. Receivable/ debtors, when realised, again take the form of cash and the cycle starts again.

This can be explained with the help of the following diagram:



The continuing flow from cash to suppliers, to inventory, to accounts receivable and back into cash is called the working capital cycle or operating cycle. In other words, the term operating cycle refers to the length of time which begins with the acquisition of raw materials of a firm and ends with the final realisation of cash from debtors.

The amount of working capital depends upon the length of working capital cycle. Longer the working cycle, higher is the need of working capital to be maintained. This is because the

fund will then remain tied-up in various items of current assets for a longer period. The length of operating cycle varies from industry to industry and from business to business.
A merchandising concern will have a shorter operating cycle as it deals in finished products. On the other hand, in a service enterprise, operating cycle is shortest and involve conversion of cash into debtors and debtors into cash.

Thus, if raw materials remain in store for, say, 30 days, the conversion or processing period is 45 days, finished goods remain in store for 30 days and debts collection period is 40 days then the total of this period (i.e., 30 + 45 + 30 + 40 or 145 days) is referred to as Gross Operating Cycle. Business enterprises receive credit in the purchase of raw materials from suppliers. This payment deferral period reduces the length of working capital.

The net-working cycle period is ascertained by deducting from gross operation cycle the payment deferral period or period of credit granted by suppliers of raw materials. If period of credit given by supplier is 45 days, then Net Operating Cycle is 100 days (i.e., 145 days – 45 days). Similar conclusions can also be drawn for other elements of cost i.e., for direct wages and overheads. In the case of direct wages and overheads, the operating cycle starts with the work- in-progress or processing time as there will be no raw materials storage period.

Measurement of Operating Cycle:

Strictly speaking, the volume of working capital depends upon the length of working capital cycle. So, it is important to measure working capital cycle for management of working capital. The financial statements i.e., Profit and Loss Account and Balance Sheet, can guide us to measure working capital cycle.

The steps involved in the determination of the operating cycle are shown below:

Particulars	Days
1. Raw materials holding period	***
2. Work-in-progress period	***
3. Finished goods holding period	***
4. Debtors collection period	***
Gross Operating Cycle	***
5. **Less:** Creditors payment period	(***)
Net Operating Cycle	***

The procedure can be summarised as below:

1. Raw Material Storage Period:

It represents the average period during which raw materials are kept in stores.

It is calculated as:

Raw material storage period

$$= \frac{\textbf{Average Stock of Raw materials}}{\textbf{Average daily consumption of Raw materials}}$$

Here, Average stock of raw materials

$$= \frac{\textbf{Opening Raw Material} + \textbf{Closing Raw Material}}{\textbf{2}}$$

Average daily consumption of raw material

$$= \frac{\textbf{Total material consumption}}{\textbf{No. of working days in a year (360 days)}}$$

***Note: 365 days also can be used in place of 360 days to calculate the average.**

If consumption of raw material is not available, average daily purchase can also be taken.

2. Processing Period:

Once materials are issued to production, it again involves time gap between issue of materials and production of finished product. This time gap is called processing period.

It is calculated as:

Processing Period

$$= \frac{\textbf{Average Stock of Work-in-Progress}}{\textbf{Average daily factiry cost of Production}}$$

Average stock of work-in-progress

$$= \frac{\textbf{Opening Work-in-Progress + Closing Work-in-Progress}}{\textbf{2}}$$

Average daily factory cost of production

$$= \frac{\textbf{Total factory cost of production}}{\textbf{360 days}}$$

***Note: 365 days also can be used in place of 360 days to calculate the average.**

Factory cost of production during the year = Raw materials consumed + Direct wages + Other direct expenses + Manufacturing overhead + Opening WIP – Closing WIP.

3. Finished Goods Storage Period:

Manufacturing enterprises produce the output in the expectation of future demand. Till the demand for finished product materializes, the product would remain in the store. This period is termed as finished goods storage period.

This is calculated as:

Finished goods storage Period

$$= \frac{\textbf{Average Stock of finished goods}}{\textbf{Average daily cost of goods sold}}$$

Average stock of finished goods

$$= \frac{\textbf{Opening stock of finished goods + Closing stock of finished goods}}{\textbf{2}}$$

Average daily cost of goods sold

$$= \frac{\textbf{Total cost of goods sold}}{\textbf{360 days}}$$

***Note: 365 days also can be used in place of 360 days to calculate the average.**

Cost of goods sold = Opening stock of finished goods + Factory cost of production – Closing stock of finished goods.

4. Credit period Allowed to Debtors:

The business enterprises due to competitive and other reasons—extend credit facilities to customers. The time gap between sale and realisation of cash is known as credit or collective period from debtors.

It is computed as:

$$\textbf{Credit period to debtors} = \frac{\textbf{Average Debtors}}{\textbf{Average daily credit sales}}$$

$$\textbf{Average debtors} = \frac{\textbf{Opening debtors + Closing debtors}}{\textbf{2}}$$

$$\textbf{Average daily credit sales} = \frac{\textbf{Total credit sales for the year}}{\textbf{360 days}}$$

***Note: 365 days also can be used in place of 360 days to calculate the average.**

5. Credit Period Received from Suppliers:

The business enterprises receive credit in the purchase of raw materials from suppliers. It refers to the average time taken for payment to suppliers from the date of purchase.

It is computed as:

$$\textbf{Credit from Suppliers} = \frac{\textbf{Average Creditors}}{\textbf{Average daily credit purchases}}$$

$$\textbf{Average creditors} = \frac{\textbf{Opening creditors} + \textbf{Closing creditors}}{\textbf{2}}$$

$$\textbf{Average daily credit purchases} = \frac{\textbf{Total credit purchases for the year}}{\textbf{360 days}}$$

***Note: 365 days also can be used in place of 360 days to calculate the average.**

Illustration 1:

The following information is available for Swagat Ltd.: (`. '000)

Average stock of raw materials and stores	200
Average WIP inventory	300
Average finished goods inventory	180
Average accounts receivable	300
Average accounts payable	180
Average raw materials and stores purchase on credit and consumed per day	10
Average WIP value of raw materials committed per day	12.5
Average cost of goods sold per day	18
Average sales per day	20

You are require to calculate:

(i) Duration of raw material stage

(ii) Duration of WIP stage

(iii) Duration of Finished goods stage

(iv) Duration of accounts receivable stage

(v) Duration of accounts payable stage, and

(vi) Duration of operating cycle.

Solution:

(i) Duration of Raw Material Stage

$$= \frac{\textbf{Average Stock of Raw materials and Stores}}{\textbf{Average raw materials and stores purchased per day}} = \frac{\textbf{200}}{\textbf{10}} = \textbf{20 days}$$

(ii) Duration of Work-in-progress Stage

$$= \frac{\textbf{Average work-in-progress inventory}}{\textbf{Average work-in-progress value of raw materials committed per day}} = \frac{\textbf{300}}{\textbf{12.5}}$$

= 24 days

(iii) Duration of Finished Goods Stage

$$= \frac{\textbf{Average Finished goods inventory}}{\textbf{Average cost of goods sold per day}} = \frac{\textbf{180}}{\textbf{18}} = \textbf{10 days}$$

(iv) Duration of Accounts Receivable Stage

$$= \frac{\textbf{Average Accounts Receivable}}{\textbf{AverageCredit sales per day}} = \frac{\textbf{300}}{\textbf{20}} = \textbf{15 days}$$

(v) Duration of Accounts Payable Stage

$$= \frac{\textbf{Average Accounts Payable}}{\textbf{AverageCredit purchase per day}} = \frac{\textbf{180}}{\textbf{10}} = \textbf{18 days}$$

(vi) Duration of Operating Cycle
= (i) + (ii) + (iii) + (iv) – (v)
= 20 days + 24 days + 10 days + 15 days – 18 days = 51 days

Illustration 2:
From the following information extracted from the books of a manufacturing company, compute the operating cycle in days and the amount of working capital required:

Period Covered	365 days
Average period of credit allowed by suppliers	16 days
Average Total of Debtors Outstanding	480
Raw Material Consumption	4,400
Total Production Cost	10,000
Total Cost of Sales	10,500
Sales for the year	16,000
Value of Average Stock maintained:	
Raw Material	320
Work-in-progress	350
Finished Goods	260

Solution: Calculation of Operating Cycle
(i) Raw material held in stock:

$\frac{\textbf{Average stocks of raw materials held}}{\textbf{Average consumption per day}} = \frac{\textbf{320}}{\textbf{4,400 x 365}}$	275 days
Less: Average credit period granted by Suppliers	16 days
	11 days

(ii) Work-in-progress:

$$\frac{\textbf{Average WIP maintained}}{\textbf{Average cost of production per day}} = \frac{\textbf{350}}{\textbf{10,000 / 365}} = \frac{\textbf{365 x 320}}{\textbf{10,000}} = \textbf{13 days}$$

(iii) Finished goods held in Stock:

$$\frac{\textbf{Average Finished goods maintained}}{\textbf{Average cost of goods sold per days}} = \frac{\textbf{260}}{\textbf{10,500/ 365}} = \frac{\textbf{260 x 365}}{\textbf{10,500}} = \textbf{9 days}$$

(iv) Credit period allowed to Debtors:

$$\frac{\textbf{Average total of outstanding debtors}}{\textbf{Average credit sales per day}} = \frac{\textbf{480}}{\textbf{16,000 / 365}} = \frac{\textbf{365 x 480}}{\textbf{16,000}} = \textbf{11 days}$$

∴ Total operating cycle period: (i) + (ii) + (iii) + (iv) = 44 days
∴ Numbers of operating cycles in a year = 365/44 = 8.30 times
∴ Amount of working capital required

$$= \frac{\textbf{Total operating cost}}{\textbf{Number of operating cycles in a year}} = \frac{\textbf{10,500}}{\textbf{8.3}} = \textbf{Rs. 1,265}$$

Problem for Practice 1
Calculate the operating cycle from the following figures:

	` (in Lakhs)
Annual sales	1,000
Manufacturing expenses	240
Distribution and other expenses	40
Purchase of materials	400

Opening stock:	
Raw materials	80
Work-in-progress	20
Finished goods	60
Closing stock:	
Raw materials	120
Work-in-progress	60
Finished goods	20
Opening balance of sundry debtors	40
Closing balance of sundry debtors	40

The company obtains a credit for 60 days from the suppliers. All goods are sold for credit. Assume 360 days in the year.

(Ans: Operating Cycle = 109 days)

Problem for Practice 2

From the following information, extracted from the books of a manufacturing company, compute the operating cycle in days:

Period covered: 365 days Average period of credit allowed by suppliers, 16 days

Other data are as follows:

	(Rs. In '000)
Average debtors (outstanding)	480
Raw material consumption	4,400
Total production cost	10,000
Total cost of sales	10,500
Sales for the year	16,000
Value of average stock maintained:	
Raw material	320
Work-in-process	350
Finished goods	260

(Ans: 44 days)

Reasons for a Longer Operating Cycle:

Working capital requirements depend on the operating cycle. It starts with payment for acquisition of raw materials and ends with the collection of receivables from debtors. The duration of the working capital cycle varies according to the nature of business.

The reasons for longer operating cycle are given below:

1. Firstly the working capital cycle may be longer if the availability of raw materials is not easy. As a result the organization will have to hold large amount of raw materials in stores.
2. Secondly the processing period may be longer. The nature of the product is such that the product passes through various departments to get finished.
3. Thirdly the product may be slow moving. In that case the time taken to deplete the finished goods stock will be longer.
4. Finally the credit policy and the inefficiency of the organization in debt collection also increase the length of operating cycle.

Determinants of Working Capital

Some of the major determinants of working capital are discussed below:

A company, as a general policy, wants to hold in balance as small a quantity of working capital as possible so long as undue solvency risks are not imposed on it. This is a logical approach indicating that working capital is a means to an end and not an end in itself. Quantitative amounts of working capital can hardly be set for individual firms. The corporate management has to consider the various factors in making decision regarding balances. An

appraisal of these would provide guidance to management in estimating prospective needs. These are called as determinants of working capital.

1. Nature of business: A company's working capital requirements are basically related to the kinds of business it conducts. Generally speaking, trading and financial firms require relatively large amounts of working capital, public utilities comparatively small amounts, whereas manufacturing concerns stand between these two extremes, their needs depending upon the character of industry of which they are a part.

2. Production policies: Depending upon the kind of items manufactured, a company is able to offset the effect off- seasonal fluctuations upon working capital by adjusting its production schedules. The choice rests between varying output in order to adjust inventories to seasonal requirements and maintaining a steady rate of production and permitting stocks of inventories to build up during off-season periods. It will thus be obvious that a level production plan would involve a higher investment in working capital.

3. Manufacturing process: If the manufacturing process in an industry entails a longer period because of its complex character, more working capital is required to finance that process. The longer it takes to make an approach and the greater its cost, the larger the Inventory tied up In Its manufacture and, therefore, higher the amount of working capital.

4. Turnover of circulating capital: The speed with which the circulating capital completes its round I.e., conversion of cash into inventory of raw material Into Inventory of finished goods. Inventory of finished goods into book debts or accounts receivables and book debt into cash account, plays an Important and decisive role in judging the adequacy of working capital.

5. Growth and expansion of business: As a company grows, it is logical to expect that larger amount of working capital will be required though It Is difficult to draw up firm rules for the relationship between the growth in the volume of a company's business and the growth of its working capital.

6. Business cycle fluctuations: Requirements of working capital of a company vary with the business variation. At a time when the price level comes up and boom condition prevail, the psychology of the management is to pile up a big stock of raw material and other goods likely to be used in the business operations as there is an expectation to take advantage of lower prices. The expansion of business units caused by the inflationary conditions creates demand for more and more capital.

7. Terms of purchase and sales: A business unit, making purchases on credit basis and selling its finished products on cash basis, will require lower amount of working capital, on the contrary, a concern having no credit facilities and at the same time forced to grant credit to its customers may find itself in a tight position.

8. Dividend policy: A desire to maintain an established dividend policy may affect working capital, often changes in working capital bring about an adjustment of dividend policy. The relationship between dividend policy and working capital is well established and very few companies declare a dividend without giving due consideration to its effects on cash and their needs for cash. A shortage of working capital often acts as a powerful reason for reducing or skipping a cash dividend. On the other hand, a strong position may justify continuing dividend payment.

9. Other determinants:

The following are the other determinants of working capital:

- ✓ Absence of co-ordination in production and distribution policies in a company results in a high demand for working capital.
- ✓ The absence of specialisation in the distribution of products may enhance the need of working capital.

- ✓ If the means of transport and communication in a country like India are not well-developed, the industries may face a great demand for working capital in order to maintain big inventory of raw materials and other accessories.
- ✓ The import policy of the Government may also effect the requirement of the working capital for the companies as they have to arrange for funds for imposing the goods at specified times.
- ✓ The hazards and contingencies inherent in a particular type of business decide the magnitude of working capital in terms of keeping liquid resources.

Sources of Working Capital Finance

Working Capital requirement can be normalized from short-term and long-term sources. Each source will have both merits and limitations up to certain extract. Uses of Working Capital may be differing from stage to stage

Short-Term Sources of Working Capital:

1. Indigenous Bankers:

Private money-lenders and other country bankers used to be the only source of finance prior to the establishment of commercial banks. They used to charge very high rates of interest and exploited the customers to the largest extent possible. Now-a-days with the development of commercial banks they have lost their monopoly. But even today some business houses have to depend upon indigenous bankers for obtaining loans to meet their working capital requirements.

2. Trade Credit:

Trade credit refers to the credit extended by the suppliers of goods in the normal course of business. As present day commerce is built upon credit, the trade credit arrangement of a firm with its suppliers is an important source of short-term finance. The credit-worthiness of a firm and the confidence of its suppliers are the main basis of securing trade credit. It is mostly granted on an open account basis whereby supplier sends goods to the buyer for the payment to be received in future as per terms of the sales invoice. It may also take the form of bills payable whereby the buyer signs a bill of exchange payable on a specified future date.

When a firm delays the payment beyond the due date as per the terms of sales invoice, it is called stretching accounts payable. A firm may generate additional short-term finances by stretching accounts payable, but it may have to pay penal interest charges as well as to forgo cash discount. If a firm delays the payment frequently, it adversely affects the credit worthiness of the firm and it may not be allowed such credit facilities in future.

The main advantages of trade credit as a source of short-term finance include:

(i) It is an easy and convenient method of finance.
(ii) It is flexible as the credit increases with the growth of the firm.
(iii) It is informal and spontaneous source of finance.

However, the biggest disadvantage of this method of finance is charging of higher prices by the suppliers and loss of cash discount.

3. Installment Credit:

This is another method by which the assets are purchased and the possession of goods is taken immediately but the payment is made in installments over a pre-determined period of time. Generally, interest is charged on the unpaid price or it may be adjusted in the price. But, in any case, it provides funds for some time and is used as a source of short-term working capital by many business houses which have difficult fund position.

4. Advances:

Some business houses get advances from their customers and agents against orders and this source is a short-term source of finance for them. It is a cheap source of finance and in order to minimize their investment in working capital, some firms having long production cycle,

specially the firms manufacturing industrial products prefer to take advances from their customers.

5. Factoring or Accounts Receivable Credit:

Another method of raising short-term finance is through accounts receivable credit offered by commercial banks and factors. A commercial bank may provide finance by discounting the bills or invoices of its customers. Thus, a firm gets immediate payment for sales made on credit. A factor is a financial institution which offers services relating to management and financing of debts arising out of credit sales. Factoring is becoming popular all over the world on account of various services offered by the institutions engaged in it.

Factors render services varying from bill discounting facilities offered by commercial banks to a total takeover of administration of credit sales including maintenance of sales ledger, collection of accounts receivables, credit control and protection from bad debts, provision of finance and rendering of advisory services to their clients. Factoring may be on a recourse basis, where the risk of bad debts is borne by the client, or on a non-recourse basis, where the risk of credit is borne by the factor.

At present, factoring in India is rendered by only a few financial institutions on a recourse basis. However, the Report of the Working Group on Money Market (Vaghul Committee) constituted by the Reserve Bank of India has recommended that banks should be encouraged to set up factoring divisions to provide speedy finance to the corporate entities.

In-spite of many services offered by factoring, it suffers from certain limitations. The most critical fall outs of factoring include;

(i) The high cost of factoring as compared to other sources of short-term finance,

(ii) The perception of financial weakness about the firm availing factoring services, and

(iii) Adverse impact of tough stance taken by factor, against a defaulting buyer, upon the borrower resulting into reduced future sales.

6. Accrued Expenses:

Accrued expenses are the expenses which have been incurred but not yet due and hence not yet paid also. These simply represent a liability that a firm has to pay for the services already received by it. The most important items of accruals are wages and salaries, interest, and taxes. Wages and salaries are usually paid on monthly, fortnightly or weekly basis for the services already rendered by employees. The longer the payment-period, the greater is the amount of liability towards employees or the funds provided by them. In the same manner, accrued interest and taxes also constitute a short-term source of finance.

Taxes are paid after collection and in the intervening period serve as a good source of finance. Even income-tax is paid periodically much after the profits have been earned. Like taxes, interest is also paid periodically while the funds are used continuously by a firm. Thus, all accrued expenses can be used as a source of finance. The amount of accruals varies with the change in the level of activity of a firm. When the activity level expands, accruals also increase and hence they provide a spontaneous source of finance. Further, as no interest is payable on accrued expenses, they represent a free source of financing.

However, it must be noted that it may not be desirable or even possible to postpone these expenses for a long period. The payment period of wages and salaries is determined by provisions of law and practice in industry. Similarly, the payment dates of taxes are governed by law and delays may attract penalties. Thus, we may conclude that frequency and magnitude of accruals is beyond the control of managements. Even then, they serve as a spontaneous, interest free, limited source of short-term financing.

7. Deferred Incomes:

Deferred incomes are incomes received in advance before supplying goods or services. They represent funds received by a firm for which it has to supply goods or services in future. These funds increase the liquidity of a firm and constitute an important source of short-term finance. However, firms having great demand for its products and services, and those having good reputation in the market can demand deferred incomes.

8. Commercial Paper:

Commercial paper represents unsecured promissory notes issued by firms to raise short-term funds. It is an important money market instrument in advanced countries like U.S.A. In India, the Reserve Bank of India introduced commercial paper in the Indian money market on the recommendations of the Working Group on Money Market (Vaghul Committee). But only large companies enjoying high credit rating and sound financial health can issue commercial paper to raise short-term funds. The Reserve Bank of India has laid down a number of conditions to determine eligibility of a company for the issue of commercial paper. Only a company which is listed on the stock exchange, has a net worth of at least Rs 10 crores and a maximum permissible bank finance of Rs 25 crores can issue commercial paper not exceeding 30 per cent of its working capital limit.

The maturity period of commercial paper, in India, mostly ranges from 91 to 180 days. It is sold at a discount from its face value and redeemed at face value on its maturity. Hence, the cost of raising funds, through this source, is a function of the amount of discount and the period of maturity and no interest rate is provided by the Reserve Bank of India for this purpose.

Commercial paper is usually bought by investors including banks, insurance companies, unit trusts and firms to invest surplus funds for a short-period. A credit rating agency, called CRISIL, has been set up in India by ICICI and UTI to rate commercial papers. Commercial paper is a cheaper source of raising short-term finance as compared to the bank credit and proves to be effective even during period of tight bank credit. However, it can be used as a source of finance only by large companies enjoying high credit rating and sound financial health. Another disadvantage of commercial paper is that it cannot be redeemed before the maturity date even if the issuing firm has surplus funds to pay back.

9. Working Capital Finance by Commercial Banks:

Commercial banks are the most important source of short-term capital. The major portion of working capital loans are provided by commercial banks. They provide a wide variety of loans tailored to meet the specific requirements of a concern.

The different forms in which the banks normally provide loans and advances are as follows:

(a) Loans, (b) Cash Credits, (c) Overdrafts, (d) Purchasing and discounting of bills.

(a) Loans:

When a bank makes an advance in lump-sum against some security it is called a loan. In case of a loan, a specified amount is sanctioned by the bank to the customer. The entire loan amount is paid to the borrower either in cash or by credit to his account. The borrower is required to pay interest on the entire amount of the loan from the date of the sanction.

A loan may be repayable in lump sum or installments. Interest on loans is calculated at quarterly rests and where repayments are stipulated in installments, the interest is calculated at quarterly rests on the reduced balances. Commercial banks generally provide short-term loans up to one year for meeting working capital requirements. But now-a-days term loans exceeding one year are also provided by banks. The term loans may be either medium-term or long- term loans.

(b) Cash Credits:

A cash credit is an arrangement by which a bank allows his customer to borrow money up to a certain limit against some tangible securities or guarantees. The customer can withdraw from his cash credit limit according to his needs and he can also deposit any surplus amount with him. The interest in case of cash credit is charged on the daily balance and not on the entire amount of the account. For these reasons, it is the most favourite mode of borrowing by industrial and commercial concerns. The Reserve Bank of India issued a directive to all scheduled commercial banks on 28th March 1970, prescribing a commitment charge which banks should levy on the unutilized portion of the credit limits.

(c) Overdrafts:

Overdraft means an agreement with a bank by which a current account-holder is allowed to withdraw more than the balance to his credit up to a certain limit. There are no restrictions for operation of overdraft limits. The interest is charged on daily overdrawn balances. The main difference between cash credit and overdraft is that overdraft is allowed for a short period and is a temporary accommodation whereas the cash credit is allowed for a longer period. Overdraft accounts can either be clean overdrafts, partly secured or fully secured.

(d) Purchasing and Discounting of Bills:

Purchasing and discounting of bills is the most important form in which a bank lends without any collateral security. Present day commerce is built upon credit. The seller draws a bill of exchange on the buyer of goods on credit. Such a bill may be either a clean bill or a documentary bill which is accompanied by documents of title to goods such as a railway receipt.

The bank purchases the bills payable on demand and credits the customer's account with the amount of bill less discount. At the maturity of the bills, bank presents the bill to its acceptor for payment. In case the bill discounted is dishonoured by non-payment, the bank recovers the full amount of the bill from the customer along with expenses in that connection. In addition to the above mentioned forms of direct finance, commercial banks help their customers in obtaining credit from their suppliers through the letter of credit arrangement.

Long-term Sources of Working Capital:

1. Shares: Issue of shares is the most important sources for raising the permanent or long term capital. A Co; can issue various types of shares as equity. Preference & deferred shares.

2. Debentures: It is an instrument issued by the company acknowledging its debt to its holder. The debenture holders are the creditors of the company. A fixed rate of interest is paid on debentures. The interest on debt, is charge against profit & loss all.

3. Public deposits: Public deposits are the fixed deposits accepted by a business enterprises directly from the public this source of raising short term & medium finance was very popular' in the absence of banking facilities.

4. Ploughing Back of profits: Which means the re- investments by concern of its surplus earnings in its business of finance & it most suitable for an established firm for its expansion, modernization & replacement etc it is the cheapest rather cost free source of finance.

5. Loans from financial institutions: Financial institutions such as commercial banks, LIC, Industrial Finance Corporation of India (IFC) SFC State Industrial development corporation, IDBI etc.

Tandon Committee Report on Working Capital:

In 1974, a study group under the chairmanship of Mr. P. L. Tandon was constituted for framing guidelines for commercial banks for follow-up & supervision of bank credit for ensuring proper end-use of funds. The group submitted its report in August 1975, which came to be popularly known as Tandon Committee Report on Working Capital. Its main

recommendations related to norms for inventory and receivables, the approach to lending, style of credit, follow ups & information system.
It was a landmark in the history of bank lending in India. With acceptance of major recommendations by Reserve Bank of India, a new era of lending began in India.

Tandon Committee's Recommendations

Breaking away from traditional methods of security oriented lending, the committee enjoyed upon the banks to move towards need based lending. The committee pointed out that the best security of bank loan is a well-functioning business enterprise, not the collateral.
Major recommendations of the Tandon committee were as follows:
1. Assessment of need based credit of the borrower on a rational basis on the basis of their business plans.
2. Bank credit would only be supplementary to the borrower's resources and not replace them, i.e. banks would not finance one hundred percent of borrower's working capital requirement.
3. Bank should ensure proper end use of bank credit by keeping a closer watch on the borrower's business, and impose financial discipline on them.
4. Working capital finance would be available to the borrowers on the basis of industry wise norms (prescribe first by the Tandon Committee and then by Reserve Bank of India) for holding different current assets, viz.

- ✓ Raw materials including stores and others items used in manufacturing process.
- ✓ Stock in Process.
- ✓ Finished goods.
- ✓ Accounts receivables.

5. Credit would be made available to the borrowers in different components like cash credit; bills purchased and discounted working capital, term loan, etc., depending upon nature of holding of various current assets.
6. In order to facilitate a close watch under operation of borrowers, bank would require them to submit at regular intervals, data regarding their business and financial operations, for both the past and the future periods.

The Norms

Tandon committee had initially suggested norms for holding various current assets for fifteen different industries. Many of these norms were revised and the least extended to cover almost all major industries of the country.
The norms for holding different current assets were expressed as follows:
1. Raw materials as so many months' consumption. They include stores and other items used in the process of manufacture.
2. Stock-in-process, as so many months' cost of production.
3. Finished goods and accounts receivable as so many months' cost of sales and sales respectively. These figures represent only the average levels. Individual items of finished goods and receivables could be for different periods which could exceed the indicated norms so long as the overall average level of finished goods and receivables does not exceed the amounts as determined in terms of the norm.
4. Stock of spares was not included in the norms. In financial terms, these were considered to be a small part of total operating expenditure. Banks were expected to assess the requirement of spares on case-by-case basis. However, they should keep a watchful eye if spares exceed 5% of total inventories.

The norms were based on average level of holding of a particular current asset, not on the individual items of a group. For example, if receivables holding norms of an industry was two

months and an unit had satisfied this norm, calculated by dividing annual sales with average receivables, then the unit would not be asked to delete some of the accounts receivable, which were being held for more than two months.

The Tandon committee while laying down the norms for holding various current assets made it very clear that it was against any rigidity and straight jacketing. On one hand, the committee said that norms were to be regarded as the outer limits for holding different current assets, but these were not to be considered to be entitlements to hold current assets upto this level. If a borrower had managed with less in the past, he should continue to do so. On the other hand, the committee held that allowance must be made for some flexibility under circumstances justifying a need for re-examination.

The committee itself visualized that there might be deviations of norms in the following circumstances.
1. Bunched receipt of raw materials including imports.
2. Interruption of production due to power cuts, strikes or other unavoidable circumstances.
3. Transport delays or bottlenecks.
4. Accumulation of finished goods due to non-availability of shipping space for exports or other disruption in sales.
5. Building up of stocks of finished goods, such as machinery, due to failure on the part of the purchaser for whom these were specifically designed and manufactured.
6. Need to cover full or substantial requirement of raw materials for specific export contract of short duration.
While allowing the above exceptions, the committee observed that the deviations should be for known and specific circumstances and situation, and allowed only for a limited period to tide over the temporary difficulty of a borrowing unit. Returns to norms would be automatic when conditions return to normal.

Methods of Lending

The lending framework proposed by Tandon Committee dominated commercial bank lending in India for more than 20 years and its continues to do so despite withdrawal of mandatory provision of Reserve Bank of India in 1997. As indicated before, the essence of Tandon Committee's recommendations was to finance only portion of borrowers working capital needs not the whole of it. It was thought that gradually, the borrower should depend less on banks to fund its working capital needs. From this point of view the committee three graduated methods of lending, which came to be known as maximum permissible bank finance system or in short MPBF system.

For the purpose of calculating MPBF of a borrowing unit, all the three methods adopted equation:
Working Capital Gap = Gross Current Assets - Accounts Payable
…. as a basis which is translated arithmetically as follows:

Gross Current Assets	Rs. …….
Less: Current Liabilities	
other than bank borrowings	Rs. …….
Working Capital Gap	Rs. …….

First method of lending

The contribution by the borrowing unit is fixed at a minimum of 25% working capital gap from long-term funds. In order to reduce the reliance of the borrowers on bank borrowings by bringing in more internal cash generation for the purpose, it would be necessary to raise

the share of the contribution from 25% of the working capital gap to a higher level. The remaining 75% of the working capital gap would be financed by the bank. This method of lending gives a current ratio of only 1:1. This is obviously on the low side.

Second method of lending

In order to ensure that the borrowers do enhance their contributions to working capital and to improve their current ratio, it is necessary to place them under the second method of lending recommended by the Tandon committee which would give a minimum current ratio of 1.33:1. The borrower will have to provide a minimum of 25% of total current assets from long-term funds. However, total liabilities inclusive of bank finance would never exceed 75% of gross current assets. As many of the borrowers may not be immediately in a position to work under the second method of lending, the excess borrowing should be segregated and treated as a working capital term loan which should be made repayable in installments. To induce the borrowers to repay this loan, it should be charged a higher rate of interest. For the present, the group recommends that the additional interest may be fixed at 2% per annum over the rate applicable on the relative cash credit limits. This procedure should be made compulsory for all borrowers (except sick units) having aggregate working capital limits of rs.10 lakhs and over.

Third method of lending

Under the third method, permissible bank finance would be calculated in the same manner as the second method but only after deducting four current assets from the gross current assets. The borrower's contribution from long-term funds will be to the extent of the entire core current assets, as defined, and a minimum of 25% of the balance current assets, thus strengthening the current ratio further. This method will provide the largest multiplier of bank finance.

Core portion current assets were presumed to be that permanent level which would generally vary with the level of the operation of the business. For example, in case of stocks of materials the core line goes horizontally below the ordering level so that when stocks are ordered materials are consumed down the ordering level during the lead time and touch the core level, but are not allowed to go down further. This core level provides a safety cushion against any sudden shortage of materials in the market or lengthening of delivery time. This core level is considered to be equivalent to fixed assets and hence, was recommended to be financed from long-term sources.

Chore Committee Report on Working Capital:

The Reserve Bank of India in March, 1979 appointed another committee under the chairmanship of Shri K.B. Chore to review the working of cash credit system in recent years with particular reference to the gap between sanctioned limits and the extent of their utilization and also to suggest alternative type of credit facilities which should ensure greater credit discipline.

The important recommendations of the Committee are as follows:

(i) The banks should obtain quarterly statements in the prescribed format from all borrowers having working capital credit limits of Rs 50 lacs and above.

(ii) The banks should undertake a periodical review of limits of Rs 10 lacs and above.

(iii) The banks should not bifurcate cash credit accounts into demand loan and cash credit components.

(iv) If a borrower does not submit the quarterly returns in time the banks may charge penal interest of one per cent on the total amount outstanding for the period of default.

(v) Banks should discourage sanction of temporary limits by charging additional one per cent interest over the normal rate on these limits.
(vi) The banks should fix separate credit limits for peak level and non-peak level, wherever possible.
(vii) Banks should take steps to convert cash credit limits into bill limits for financing sales.

Assessment of Working Capital:

The requirement for working capital of a small-scale enterprise needs to be assessed correctly as far as possible. Because, as we mentioned earlier both under and over working capitals are harmful for the enterprise. For example, over-estimation of working capital would result in blockage of scarce funds in idle assets.

On the other hand, under-assessment of working capital would deprive the enterprise of profitable opportunities. It is here that the concept of operating cycle of working capital reveals its sharpness. Let us explain it with an example.

Suppose the operating cycle of a small-scale enterprise is of four months. It means that the cycle of operations is repeated three times in a year. This further means that the enterprise would need an amount of working capital equal to one-third of the operating expenses of the whole last year.

This is best expressed by the following formula:
Total Working Capital Requirement = Total Operating Expenses in the Last Year/Number of Operating Cycles in the Year
In addition, if the prices go up in the coming year, a certain percentage for such contingencies will also be added to above working capital calculated so.

1. Percentage of Sales Method:

This method of estimating working capital requirements is based on the assumption that the level of working capital for any firm is directly related to its sales value. If past experience indicates a stable relationship between the amount of sales and working capital, then this basis may be used to determine the requirements of working capital for future period.
Thus, if sales for the year 2019 amounted to Rs 30,00,000 and working capital required was Rs 6,00,000; the requirement of working capital for the year 2020 on an estimated sales of Rs 40,00,000 shall be Rs 8,00,000; i.e. 20% of Rs 40,00,000.

The individual items of current assets and current liabilities can also be estimated on the basis of the past experience as a percentage of sales. This method is simple to understand and easy to operate but it cannot be applied in all cases because the direct relationship between sales and working capital may not be established.

2. Regression Analysis Method (Average Relationship between Sales and Working Capital):

This method of forecasting working capital requirements is based upon the statistical technique of estimating or predicting the unknown value of a dependent variable from the known value of an independent variable. It is the measure of the average relationship between two or more variables, i.e.; sales and working capital, in terms of the original units of the data.

3. Cash Forecasting Method:

This method of estimating working capital requirements involves forecasting of cash receipts and disbursements during a future period of time. Cash forecast will include all possible sources from which cash will be received and the channels in which payments are to be made

so that a consolidated cash position is determined. This method is similar to the preparation of a cash budget. The excess of receipts over payments represents surplus of cash and the excess of payments over receipts causes deficit of cash or the amount of working capital required.

4. Operating Cycle Method:

This method of estimating working capital requirements is based upon the operating cycle concept of working capital. The cycle starts with the purchase of raw material and other resources and ends with the realization of cash from the sale of finished goods. It involves purchase of raw materials and stores, its conversion into stock of finished goods through work-in-process with progressive increment of labour and service costs, conversion of finished stock into sales, debtors and receivables, realization of cash and this cycle continues again from cash to purchase of raw material and so on. The speed/time duration required to complete one cycle determines the requirement of working capital – longer the period of cycle, larger is the requirement of working capital and vice-versa.

Problems and Solutions under Working Capital Requirement

Problem 1

Prepare an estimate of working capital requirement from the following information of a trading concern.

Projected annual sales 10,000 units
Selling price Rs. 10 per unit
Percentage of net profit on sales 20%
Average credit period allowed to customers 8 Weeks
Average credit period allowed by suppliers 4 Weeks
Average stock holding in terms of sales requirements 12 Weeks
Allow 10% for contingencies

Solution: **Statement of Working Capital Requirements**

Current Assets	**Rs.**
Debtors (8 weeks) (at cost) (80,000/52 × 8)	12,307
Stock (12 weeks) (80,000/52 ×12)	18,463
	30,770
Less: Current Liability	
Credits (4 weeks) (80,000/52 × 4)	6,154
	24,616
Add: 10% for Contingencies	2,463
Working Capital Required	**27,078**

Working Notes

Sales = 10000×10 = Rs. 1,00,000
Profit 20% of Rs. 1,00,000 = Rs. 20,000
Cost of Sales=Rs.1,00,000 – 20,000 = Rs. 80,000
As it is a trading concern, cost of sales is assumed to be the purchases.

Problem 2

Prepare an estimate of working capital requirement from the following informations of a trading concern.

Projected annual sales Rs. 6,50,000
Percentage of net profit on sales 25%
Average credit period allowed to debtors 10 Weeks
Average credit period allowed by creditors 4 Weeks
Average stock holding in terms of sales requirements 8 Weeks

Allow 20% for contingencies

Solution: **Statement of Working Capital Requirements**

Current Assets	**Rs.**
Debtors (10 weeks) (at cost) (5,20,000/52 × 10)	1,00,000
Stock (8 weeks) (5,20,000/52 ×8)	80,000
	1,80,000
Less: Current Liability	
Credits (4 weeks) (5,20,000/52 × 4)	(40,000)
	1,40,000
Add: 20% for Contingencies	28,000
Working Capital Required	**1,68,000**

Working Notes

Sales = Rs. 6,50,000

Profit 25/125 of Rs. 6,50,000 = Rs. 1,30,000

Cost of Sales = Rs. 6,50,000 – 1,30,000 = Rs. 5,20,000

As it is a trading concern, cost of sales is assumed to be the purchases.

Problem 3

The board of directors of Aravind mills limited request you to prepare a statement showing the working capital requirements for a level of activity of 30,000 units of output for the year. The cost structure for the company's product for the above mentioned activity level is given below.

	Cost per Unit (Rs.)
Raw materials	20
Direct labour	5
Overheads	15
Total	40
Profit	10
Selling price	50

(a) Past experience indicates that raw materials are held in stock, on an average for 2 months.

(b) Work in progress (100% complete in regard to materials and 50% for labour and overheads) will be half a month's production.

(c) Finished goods are in stock on an average for 1 month.

(d) Credit allowed to suppliers: 1 month.

(e) Credit allowed to debtors: 2 months.

(f) A minimum cash balance of Rs 25,000 is expected to be maintained.

Prepare a statement of working capital requirements.

Solution

Output per annum = 30,000 units

Output per annum = 12% of 30,000 =2,500 units

Raw materials p. m. Rs. 20 × 2500	50,000
Labour p. m. Rs. 5 × 2,500	12,500
Overheads p. m. Rs. 15 × 2,500	37,500
	1,00,000

Statement of Working Capital Requirements

Particulars	**Rs.**
Stock of raw materials (2 months) 50,000 x 2	1,00,000
Work-in-progress (1/2 months)	

Raw materials = 50,000 x ½	25,000	
Labour = 12,500 x ½ x 50/100	3,125	
Overheads = 37,500 x ½ x 50/100	9,375	37,500
Stock of finished goods (1 month) 1, 00,000 x 1		1,00,000
Debtors (2 month) 1,00,000 x 2		2,00,000
Cash balance required		25,000
		4,62,500
Less: Current liability		
Creditors (1 month) 50,000 x 1		(50,000)
Working capital required		**4,12,500**

Problem 4

Selva and Co. desires to purchase a business and has consulted you and one point on which you are to advise them is the average amount of working capital which will be required in the first year's working.

You have given the following estimates and instructed to add 10% to your computed figure to allow for contingencies.

	Figures for the year
(i) Amount blocked up for stocks:	
Stocks of finished product	3,000
Stocks of stores, materials, etc.,	5,000
(ii) Average credit given:	
Inland sales 4 weeks credit	26,000
Export sales— 1.5 weeks credit	65,000
(iii) Lag in payment of wages and other outputs	
Wages — 1.5 weeks	2,40,000
Stocks of materials, etc. — 1.5 month	36,000
Rent, Royalties, etc.—4 months	8,000
Clerical staff— 1.5 month	60,000
Manager— ½ month	4,000
Miscellaneous expenses— 1.5 month	36,000
(iv) Payment in advance	
Sundry Expenses (paid quarterly in advance)	6,000
(v) Undrawn profit on the average throughout the year	9,000

State your calculations for the average amount of working capital required.

Solution: **Statement of Working Capital**

Particulars		**Rs.**
Current Assets		
Stock of finished products		3,000
Stock of stores material, etc.		5,000
Sundry debtors		
(a) Inland (4 weeks) 2,60,000 × 4/52	20,000	
(b) Export Sales (1.5 weeks) 65,000 × 1.5/12	1,875	21,875
Payments in advance 6,000 × ¼		1,500
	Total (A)	31,375
Less: Lag in payment of wages (1.5 weeks) 24,000 × 1.5/12		6,923
Stock, Materials etc. (1.5 months) 36,000 × 1.5/12		4,500
Rent, Royalties, etc. (6 months) 8,000 × 6/12		4,000
Clerical staff (1.5 month) 60,000 × 1.5/12		7,500
Manager (1/2 month) 4000 × 0.5		167
Miscellaneous Expenses (1.5 months) 36,000 × 1.5/12		4,500
	Total (B)	27,590

	Net Working Capital (A – B)	3,785
Add: 10% Margin for Contingencies		379
	Net Working Capital Required	**4,164**

Problem 5

A proforma cost sheet of a company provides the following particulars:

Elements of Cost	Amt. Per Unit (Rs.)
Raw Materials	140
Direct Labours	60
Overheads	70
Total Cost	270
Profit	30
Selling Price	300

Further particulars available are:

Raw materials are in stock on an average for one month. Materials are in process on an average for half a month. Finished goods are in stock on an average for one month.

Credit allowed by suppliers is one month – credit allowed to customers is two months. Lag in payment of wages is 1.5 weeks. Lag in payment of overhead expenses is one month. One fourth of the output is sold against cash. Cash in hand and at bank is expected to be Rs. 50,000.

You are required to prepare a statement showing the working capital needed to finance, a level of activity of 2,40,000 units of production. You may assume that production is carried on evenly throughout the year; wages and overhead accrue similarly and a time period of 4 weeks is equivalent to a month.

Note: Year = 4×12 = 48 weeks

Solution: **Statement of Working Capital**

Particulars	Rs.	Rs.
Current Assets		
(i) Stock of raw materials (4 weeks) 2,40,000/48 × 140 = 7,00,000 × 4		28,00,000
(ii) Work in process (2 weeks)		
Raw materials 7,00,000 × 2	14,00,000	
Direct labour 2,40,000 × 60/48, 3,00,000 × 2	6,00,000	
Overheads 2,40,000 × 70/48, 3,50,000 × 2	7,00,000	27,00,000
(iii) Stock of finished goods (4 weeks)		
Raw Materials 7,00,000 × 4	28,00,000	
Direct Labour 3,00,000 × 4	12,00,000	
Overheads 3,50,000 × 4	14,00,000	54,00,000
(iv) Sundry Debtors (8 weeks)		
Raw Materials 7,00,000 × 8 × ¾	42,00,000	
Direct Labour 3,00,000 × 8 × ¾	18,00,000	
Overheads 3,50,000 × 8 × 3/4	21,00,000	81,00,000
Cash in hand and at Bank		50,000
		1,90,50,000
Less: Current Liabilities		
(i) Sundry creditors (4 weeks) 7,00,000 × 4	28,00,000	
(ii) Wages Outstanding (1.5 weeks) 3,00,000 × 3/2	4,50,000	
(iii) Lag in payment of overhead (4 weeks) 3,50,000 × 4	14,00,000	46,50,000
Net Working Capital Required		**1,44,00,000**

Problem 6

A proforma cost sheet of a company provides the following particulars:

Particulars	Amount per unit
Elements of Cost:	
Raw materials	80
Direct labour	30
Overheads	60
Total cost	170
Profit	30
Selling price	200

The following further particulars are available:

Raw materials in stock, on average, one month; Materials in process (completion stage, 50 per cent), on average, half a month; Finished goods in stock, on average, one month.

Credit allowed by suppliers is one month; Credit allowed to debtors is two months; Average time-lag in payment of wages is 1.5 weeks and one month in overhead expenses; one-fourth of the output is sold against cash; cash in hand and at bank is desired to be maintained at Rs 3,65,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 1,04,000 units of production. You may assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. For calculation purposes, 4 weeks may be taken as equivalent to a month.

Solution: Statement showing determination of net working capital

Particulars	Rs.
(A) Current assets:	
(i) Stock of materials for 1 month: (1,04,000 x Rs 80 x 4/52)	6,40,000
(ii) Work-in-progress for 0.5 month:	
(a) Material (1,04,000 x Rs 80 x 2/52) x 0.50	1,60,000
(b) Labour (1,04,000 x Rs 30 x 2/52) x 0.50	60,000
(c) Overheads (1,04,000 x Rs 60 x 2/52) x 0.50	1,20,000
(iii) Finished goods for 1 month: (1,04,000 x Rs 170 x 4/52)	13,60,000
(iv) Debtors for 2 months (78,000 x Rs 170 x 8/52)	20,40,000
(v) Cash in hand and at bank	3,65,000
Total investments in current assets (A)	47,45,000
(B) Current liabilities:	
(i) Creditors, 1 month's purchase of raw materials, (i.e. 1,04,000 x Rs.80 x 4/52)	6,40,000
(ii) Average time-lag in payment of expenses	
(a) Overheads (1,04,000 x Rs 60 x 4/52)	4,80,000
(b) Labour (1,04,000 x Rs 30 x 3/104)	90,000
Total estimate of current liabilities (B)	12,10,000
Net Working Capital = Current assets – Current liabilities (A – B)	**35,35,000**

Working Notes and Assumptions

1. 26,000 units have been sold for cash. Therefore, credit sales pertain to 78,000 units only.
2. Year has 52 weeks.
3. All overheads are assumed to be variable. Presence of depreciation element in overheads will lower the working capital requirement.

Problems for Practice

Problem 1

V.S.M. Ltd. is engaged in large scale retail business. From the following informations you are required to forecast their working capital requirements.

Projected Annual Sales Rs. 130 lakhs
Percentage of net profit on cost of sales 25%
Average credit period allowed to debtors 8 weeks.
Average credit period allowed by creditors 4 weeks.
Average stock carrying 8 weeks (in terms of sales requirements).
Add : 10% to computed figures to allow for contingencies.

(Ans: 24,75,000)

Problem 2

Prepare an estimate of working capital requirements.
(i) Projected annual sales — 80,000 units.
(ii) Selling price Rs. 8 per unit.
(iii) Percentage of profit 20%.
(iv) Credit allowed to debtors — 10 weeks.
(v) Credit allowed to suppliers — 8 weeks.
(vi) Average stock holding (in terms of sales) — 10 weeks.
(vii) Allow 20% for contingencies.

(Ans: 1,41,786)

Problem 3

Arvind Ltd. supplies the following information's for calculating the working capital. Firm levels of activity of Rs. 2,40,000 units. The cost structure particulars are:

	Cost Per Unit (Rs.)
Raw materials	30
Direct labour	10
Over-heads	20
Total	60
Profit	15
Selling price	75

(a) Raw materials are in store on average for 1 month.
(b) Work in process (100% complete in regard to materials and 50% for labour and overheads for half a month's production.
(c) Finished goods remain in godown on average for a month.
(d) Suppliers one month to customers 2 months (calculation of customers may be made on selling price).
(e) Minimum cash balance required is Rs. 30,000.
(f) The production is evenly throughout the year.

(Ans: 46,80,000)

Problem 4

A company Ltd. supplies the following cost sheet:
Element of cost

Raw material — 45%
Labour — 15%
Overheads — 25%

The following further particulars are available.
(i) Raw materials remain in shares 5 weeks.
(ii) Cash in processing 4 weeks.
(iii) Finished goods in own house 6 weeks.

(iv) Credit period to customers 8 weeks supplies 4 weeks.
(v) Lag in payment wages 2 weeks.
(vi) Selling price per unit Rs. 60.
You are required to prepare the working capital requirements adding 15% for contribution in all levels of activity of 1,04,000 units of production made during the period.

(Ans. Rs. 20,17,100)

Problem 5

Q Ltd sells goods at a uniform rate of grass profit of 20% on sales including depreciation as part of cost of production its annual figures are as follows.

Sales (At 2 months credit)	24,00,000
materials consumed (supplier, credit 2 months)	6,00,000
Wages paid (monthly at the beginning of subsequent month)	4,80,000
Manufacturing expenses (Cash expenses are paid one month in arrear)	6,00,000
Administration expenses (Cash expenses are paid one month in arrears)	1,50,000
Sales promotion expenses	75,000

The company keeps one month stock each of raw materials and finished goods.
A minimum cash balance of Rs. 80,000 is always keep. The company wants, to adopt a 10% safety margin in the maintenance of working capital The company has no work in progress Find out the requirement of working capital of the company on cash cost basis.

(Ans: 4,44,125)

Problem 6

The following information has been extracted from the records of the company.

Product cost sheet	**Rs/unit**
Raw materials	45
Direct labour	20
Over heads	40
Total	105
Profit	15
Selling price	120

1. Raw materials are in stock on an average of two months.
2. The materials are in process on an average for 4 weeks. The degree of completions 50%.
3. Finished goods stock on an average is one month
4. The log in payment of wages & over heads is 1 ½ weeks
5. Time lag in receipts of proceeds from debtors is 2 months
6. Credit allowed by suppliers is one month
7. 20% of the output is sold against cash
8. The company is expects to keep a cash balance of Rs. 1,00,000
9. Take 52 weeks per annum.

The company is poised for a manufacture of 1,44,000 unit, in the year.
You are required to prepare working capital requirement of the company.

(Ans: 45,36,307)

Problem 7

A proforma cost sheet of a company provides the following data:

	Rs
Raw material cost per unit	117
Direct labour cost per unit	49

Factory over head cost per unit	
(Includes depreciation of 18 per unit	98
Total cost per unit	264
Profit	36
Selling price per unit	300

Following additional information is available;

Average Raw material in Stock	4 weeks
Average work - in - progress	2 weeks
(% completion with respect to materials 80%, Labour & overheads 60%)	
Finished goods in stock	3 weeks
Credit period allowed to debtors	6 weeks
Credit period availed from supplier	8 weeks
Time lag in payment of wages	1 week
Tine lag in payment of overheads	2 week

The company sells one - fifth of the output against cash & maintains cash balance of Rs. 2,50,000

Required:

Prepare a statement showing estimate of working capital needed to finance a budgeted activity level of 78,000 units. You may assume that production is carried an evenly throughout the year & wages & overheads accrue similarly.

(Ans: 26,25,700)

Problem 8

The Board of Directors of Nanak Engineering Company Private Ltd. request you to prepare a statement showing the working Capital Requirements for a level of activity of Rs. 1,56,000 units of production.

The following information's are available for your calculations:

	Cost Per Unit (Rs.)
Raw materials	90
Direct labour	40
Over-heads	75
Total	205
Profit	60
Selling price	265

(i) Raw materials are in stock, on average one month.

(ii) Materials are in process, on average 2 weeks.

(iii) Finished goods are in stock, on average one month.

(iv) Credit allowed by suppliers, one month.

(v) Time lag in payment from debtors, 2 months.

(vi) Lag in payment of wages, 1.5 weeks.

(vii) Lag in payment of overheads is one month.

20% of the output is sold against cash. Cash in hand and at bank is expected to be Rs. 60,000. It is to be assumed that production is carried on evenly throughout the year; wages and overheads accrue similarly and a time period of 4 weeks is equivalent to a month.

(Ans: 66,06,000)