**FINANCIAL AND BUSINESS MANAGEMENT FOR ROAD CONTRACTORS**

**MODULE FOUR SESSION FIVE PARTICIPANTS’ NOTES**

**MANAGEMENT OF WORKING CAPITAL AND REVENUE RECOGNITION**

**1.0 Objectives of the session:**

1. To enable the participants to better manage working capital items and to appreciate the importance of good working capital management.
2. To enable the participants understand treatment of revenue, profit and work in progress in construction works.
3. To make the participants appreciate the importance of putting in place appropriate financial management policy relating to working capital and revenue.

**1.2 Working Capital Management:**

**1.2.1 Need for control of working capital**

Working capital or circulating capital is equal to current assets less current liabilities. Working capital comprises of the value of raw materials, work in progress, finished stocks accounts payable and cash, less accounts payable. The size of this figure has a direct effect on the liquidity and profitability of an organization. For an expanding business, it is essential that future working capital requirements are carefully planned so that adequate finance can be found. The more the amount of working capital invested, the greater the required profit will be to make a satisfactory return on capital employed. Because of its effect on profitability and also on liquidity, it is essential that working capital is adequately controlled.

**1.2.2 Operating (cash) cycle:**

The operating cycle is the length of time between the company's payout on raw materials, wages and other requirements and the receipt of cash from the client. As cash circulates along the cycle, it will bring in profits earned in the trade. The shorter the period the less cash is required to sustain it and the faster are profits made by the business.

The operating cycle will repeat again and again and look as in the following figure.

BILLING

SUPPLIERS – cash out

COLLECTION – cash in

CONSTRUCTIONNNN

CONSTRUCTION

Purchases

The operating cycle is important for the management of cash or working capital because the longer the operating cycle the more financial resources the company needs. Management needs to watch that this cycle does not lengthen and if possible be shortened. The cash cycle is usually expressed in days. To understand how long the cycle is, compute it in number of days as below based on average usages:

|  |  |  |
| --- | --- | --- |
| **Element of working capital** | **Formulae** | **Equivalent days** |
| 1. Raw materials stock.
 | average value of raw materials inventoryPurchases of raw materials per day |  **X****=**  |
| 1. Credit granted by suppliers
 | Average value of creditorsPurchases of raw materials per day | **= (X)** |
| (iii) Period of Production= | average value of work in progressAverage cost of goods sold per day | **= X** |
| (iv) Period of finished goods | Average value of stock of finished goodsCosts of goods sold per day | **= X** |
| (v)Period of credit taken by customer | average value of debtors Average cost of goods sold per day | **= X** |
| Total operating cycle in days | **= X** |

Credit allowed by a supplier will reduce working capital requirements by the days of credit given and is therefore deducted.

Example: based on the following information, the cash cycle is computed as below:

1. Credit purchases for the year are shs 113,000m.
2. Annual cost of works is shs 160,000m.
3. Annual works billed is 180,000m.
4. Value of inventory at beginning and end of period are shs 21,500m and shs 25,500m respectively.
5. Value of work in progress at beginning and end of period are shs 35,000m and 37,000m respectively.
6. Accounts receivable at beginning and end of period are shs 35,000m and shs 45,000m respectively.
7. Accounts payable at the beginning and end of period are shs 14,750m and shs 20,750m respectively.

The cash cycle is computed as follows:

Raw materials stock = 23,500 x 365 = 76

 113, 000

Less credit from suppliers 17,750 x 365 = 57 19

 113,000

Work in progress 36,000 x 365 = 82

 160,000

Credit taken by customers 40,000 x 365= 81

 180,000

**Operating cycle (in days) 182**

The above information indicates that cash on average is held for six months in working capital which is quite a long time.

The operating cycle can be improved by:-

1. Quicker collection of debts
2. Reduction in the level of raw materials inventory
3. Shorter period for certification of works
4. Possible extension in credit period taken from suppliers
5. Reduction in the inventory of finished goods

**1.2.3 Inventory management:**

Inventory comprises a very large part of a business’ working capital and therefore, it is very important to control it effectively.

The aim of any inventory control system is to minimize the costs of having it whilst at the same time maintaining a certain level of customer service. Clearly there are disadvantages in having either too much or too little stock and the problem is to balance these disadvantages against the benefits obtained.

There are three basic areas to watch out in inventory management:

**1. The economic order quantity:** There are certain advantages to be gained from buying goods in large quantities. There are economies to be obtained in terms of ordering, handling and transportation. There may be also savings in terms of quantity discounts. On the other hand, there are the costs of holding inventory when it has been purchased in bulk to take advantages of bulk purchasing. It is possible to make the size of batch so large that further economies are more than offset by the costs of stock-holding, especially when these costs take into account the risk of deterioration and obsolescence. A balance is desired between too small and too large a batch. That balance which minimizes the total costs involved is termed as the economic order quantity. It is that quantity at which the cost of holding inventory and the cost of ordering it are minimized.

The economic order quantity **Q =** √**2DO/C**, where D is the annual demand of the inventory, O is the cost of ordering per batch and C is the carrying cost per unit of stock per year.

Thecost of keeping stock can be broken down into two parts:

**(1) Carrying costs which comprise:**

1. Cost of capital tied up;
2. Warehousing and administration;
3. Deterioration due to nature;
4. Obsolescence;
5. Insurance;

**(2) Ordering costs may include:**

1. Documentation,
2. Transportation,
3. Inspection,
4. Alternative sourcing,
5. Staff costs.
6. **The order level:** Another important element of inventory management is the level of inventory when a purchase order should be initiated. It is important to set this level known as the reorder level in order to ensure that not too much inventory builds up and on the other hand that materials do not run out to result in work stoppage or into expensive emergency procurement.

**Reorder level = Average lead period x average usage per period.**

Once the reorder level is reached, stores should initiate the ordering of a fresh batch of materials.

1. **. Safety inventory:** Safety inventory is intended to act as buffer due to fluctuation in both usage of the material and the lead time. The buffer stock should be determined by balancing the risk of stock outs and the cost of carrying the safety stock. However, buffer stocks may be estimated by determining the longest lead time and the materials required at the fastest consumption. The difference between that inventory and the order quantity is the buffer stock required.

* + 1. **Internal control over inventory:**

While it is important for a business to balance the costs of procurement and holding stock, it is also important to have good control over both procurement and storage costs of inventory and avoid losses.

The core internal controls to minimize losses include:

1. Segregation of the purchasing to be done by the purchasing office, receiving and storage of materials by stores and recording and payment for materials by accounts.
2. Prompt recording of all materials and consumable stores transactions
3. Independent authorization of purchasing, issue of and payment for materials and consumables.
4. Physical security over the inventory and
5. Periodic verification of the inventory during which the state of the inventory should be assessed and the quantities reconciled with stock ledgers.

Good control over the inventory reduces loss during both procurement and storage.

**1.2.5 Management of debtors:**

The efficient management of debtors is concerned with the
problem of achieving an optimum level for this investment in
working capital. To determine whether it would be profitable to
extend the level of total credit, it is necessary to assess:

1. The additional sales volume due to allowing credit.
2. The profitability of the extra sales generated.
3. The extra length of the average debt collection period.
4. The cost of the investment in additional debtors.

In the Uganda context most of the road construction contracts belong to the Government of Uganda, central or local. In this case the control of debtors is generally beyond the capacity of contractors. The principles above of managing debtors work on debtors other than government.

The overall debt collection policy of the firm should be that the
administrative costs incurred in the debt recording and collection should not
exceed the benefits received from additional business generated by allowing or extending credit.

The formulation of credit control policy seeks to achieve a
balance between extending credit to increase sales but increasing investment in trade debtors or denying credit and reducing the investment in trade debt.

Much of what is done should be guided by the industry practice, actions of competitors and the nature of the customer. This policy will take into consideration:

1. Setting customary credit period. Traditionally credit periods are set in terms of days, 0, 7, 30, 60 or 90. The business should set its credit period and assign its customers to the different credit categories.
2. Credit vetting procedures to access credit. Each individual customer should be vetted and approved before accessing credit.
3. Setting of credit limits. Depending on the credit vetting exercise, each customer should be assigned a credit limit beyond which credit should not be extended.
4. Discount policy. Discounts may be allowed to encourage early payment on a routine or as need arise basis.
5. Procedures on delayed payment. Clear procedure should be established to monitor and to deal with delayed payments; when to send reminders, stop further supplies and when to take recovery action.
6. Reporting of accounts receivables. Regular reporting of aged position of receivables and reporting of average debt holding ratios.

An average collection period in excess of the firm's normal credit
terms or in excess of the norm for the industry indicates bad credit control.

**1.2.6 Management of cash**

The term cash includes coins, currency and cheques held by the firm and balance in its bank accounts. The management of cash is concerned with managing of:-

1. Cash flows into and out of the firm.
2. Cash flows within the firm
3. Cash balances held by the firm at any particular time.

The firm should manage cash to achieve the main objectives of profitability and liquidity. If high cash balances are held the risk of not meeting obligations is minimized but then this cash will not earn anything for the firm. On the other hand, if there is shortage of cash resources and the firm is unable to discharge its current liabilities then the liquid position of the firm will be unfavourable. A firm should maintain cash balances at a desirable level.

Just like in the case of inventory, a business needs to keep safety cash below which the cash balance should not be allowed to drop. This safety cash may be determined by the cash needs of the business for a specified period of time say a fortnight or a month depending on how quickly cash flows into the business. The decision of the safety cash will again depend on balancing the risk of cash out and the cost of having idle cash.

The offer of a discount for early payment is financially worthwhile or not. It is necessary to compare the cost of the discount with the benefit of a reduced investment in trade debt. Early repayment discounts can be very expensive to a business. For example allowing a 5% discount that improves repayment by 30 days amounts to 60% annual effective cost.

Before offering an early payment discount assess the cost benefit of:

1. The additional business the discount will attract and its profit margin,
2. The reduced average debt and cost of capital thereon,
3. The decrease in the incidence of bad debt,
4. The discounted amount itself.

**Over trading risk:**Over tradingis a situation where seemingly sound businesses with lots of capacity lack funds to work on a daily basis as a result of handling too much business. This strategy of keeping very low levels of working capital is likely to be adopted by an adventurous financial manager. By investing highly in profitable ventures, he enhances the ability of the firm to generate income and hence boost
profitability. However, this is achieved at the risk of failing to operate in the
short run due to insufficient working capital.

The above scenario demonstrates that the decision to invest in working capital is not a simple one. The conflict between the two objectives of profitability and liquidity require that the financial manager seek to optimize investment in working capital. The firm should maintain a sound working capital position to be able to run its business
operations. The optimal level of investment in working capital is that which balances the profitability and liquidity objectives to ensure that not only is the firm able to meet its short-term obligations, but it is also able to generate adequate returns to its investors.
This is no easy task, however, since optimal levels of investment in working
capital depend on the *nature* of the firm and the *circumstances* under which it
is operating. An enlightened financial manager should have a feel for the right amount of working capital on a continuous basis to ensure proper functioning of the business.

**Symptoms of overtrading:**

* A rapid growth in the level of business without corresponding injection of working capital.
* An increase in stock levels, and debtors matched by a larger increase in trade creditors or bank overdraft.
* A decrease in the cash/operating cycle.
* A deteriorating current ratio (ratio of current assets to current liabilities) and quick ratio (ratio of current assets excluding inventory) to current liabilities.
* A significant slowdown in the average time for paying trade creditors.

**Note: Under trading is the opposite of overtrading and most of what has been discussed happens in the reverse.**

**1.3. Revenue recognition and** **determination of profits / losses on long term contracts:**

The key accounting issue that has always bothered contractors is how to account for profits when a contract covers more than one accounting period. By their nature most construction contracts usually take a long period of over one year and this will mean it is spread across more than one accounting period. It’s interesting to note that even contracts that are less than a year may cover two accounting periods. One would be tempted to recognize the profits at the end of the contract or to spread the profits over the contract period. However, the principle under IAS 11 is that profits should be recognized once the outcome of the contract can be estimated reliably as profitable.

If the outcome of the contract is deemed profitable, then revenues and costs should be recognized based on the percentage of completion method. The percentage of completion can be based on the proportion of contract costs of incurred also referred to as value of work certified and physical completion of contract work. The criteria of allocation chosen will be at the discretion of management. Once the criterion for allocation has been selected this will be part of the company’s accounting policies.

Due to the long nature of most construction contracts coupled with the numerous estimates that are made before the contract signing, there will arise conditions of uncertainty during the execution of the contract.

When the outcome of a construction contract cannot be estimated reliably then revenue should only be recognized to the extent of the contract costs incurred that are recoverable and contract costs should be recognized as an expense in the period incurred.

If the expected outcome is a loss (a loss is when the estimated total costs to completion exceed the anticipated revenues) then the whole loss to completion should be recognized immediately. This treatment is in line with the prudence concept where losses are recognized in full and immediately.

**1.3.1 Variations in either the contract price or costs.**

These variations in contract terms will be accounted for as changes in accounting estimates as per the requirements of ISA 8. The changes made will be effected in the current accounting period they occur in and the subsequent periods.

On the balance sheet presentation, an asset will be recognized when the costs incurred to date and the profit recognized to date exceed the progress billing (to date implies the balance sheet date). A liability will be recognized when the costs incurred to date and the profits recognized to date are less than the progress billing to date.

Necessary disclosure will need to be made in the financial statement in regards to construction the key disclosures are the amount of contract revenue recognized, the method used to determine the incurred and recognized profits on the amount of advances (billings) received and any retention.

**1.3.2 Example to demonstrate accounting treatment in long term contracts:**

There are two ways in which stage of completion can be calculated:

* 1. Revenue basis: – (work certified to date/contract price) x100.
	2. Cost basis: – (cost to date/total contract costs) x100.

The purpose of this computation is to use the percentage to determine the profit to be recognised in the income statement.

**The profit to be recognised on a long term contract = the expected profit on completion x percentage of completion.**

A number of issues can be demonstrated using examples.

**1.3.3 Example 1:** ABC is a construction company that prepares its financial statements to 31stDecember. During the year ended 31 December 2010, the company commenced a contract that is expected to take more than one year to complete.

The contract summary at 31 December 2010 is as follows:

|  |
| --- |
|                                                                             $000 |
| Progress payments                                             1,400 |
| Contract price                                                      2,736 |
| Work certified complete                                       1,824 |
| Cost to date                                                         2,160 |
| Estimated total cost to complete                          2,520  |

The percentage of completion is calculated as the value of the work invoiced to date compared to the contract price. Calculate the effect of the above contract on the financial statements at 31 December 2010.

Solution: Follow certain steps and you won’t go wrong.

1. **Determine profit or loss.**

|  |
| --- |
|                                                                           $000 |
| Contract price                                                    2,736 |
| Estimated total cost                                          (2,520) |
| Estimated total profit on completion                     216 |

2. **Determine stage of completion and profit recognised** = 1,824/2,736 = 66.67.

Profit recognised = $216 x 66.67% = $144

3. **Income statement**:

Statement of comprehensive income (extract) for the year ended 31 December 2010

|  |
| --- |
|                                                                         $000 |
| Revenue ($2,736 x 66.67%)                             1,824 |
| Cost of sales (balancing figure)                       1,680 |
| Gross profit                                                144  |

4. **Determine amount due from customer** (to be included as current assets in statement of financial position at 31 December 2010:

|  |
| --- |
|                                                                             $000 |
| Cost to date                                                        2,160 |
| Add profit recognised 144 |
| Less progress payments                                  (1,400) |
|                                                                               904  |

The logic is that $2,160 + $144 is the amount that we should get at 31 December 2010 but we only got $1,400, therefore the balance is the amount due from customers.

**1.3.4 Example 2:** Let’s look at an example of loss-making contract. As per IAS 11, If a loss is anticipated, then the entire loss should be recognised immediately. Revenue will be recognised as equivalent to the contract costs expected to be recoverable, i.e. cost to date less the loss.

DEF is a construction company that prepares its financial statements to 31 March each year. During the year ended 31 March 2010, the company commenced a contract that is expected to take more than one year to complete.

The contract summary at 31 March 2010 is as follows:

|  |
| --- |
|                                                                            $000 |
| Progress payments                                               3,780 |
| Contract price                                                       4,500 |
| Cost to date                                                         3,600 |
| Estimated further cost to complete works            1,200 |

Calculate the effect of the above contract in the financial statements at 31 March 2010.

1. Profit/loss

|  |  |
| --- | --- |
|                                                     | $000 |
| Contract price                                     | 4,500 |
| Estimated total cost (3,600 + 1,200) | (4,800) |
| Estimated total loss (all to be written off)   | (300) |

As there is loss, we do not need to calculate the stage of completion. All cost will be written off.

1. Amount due from customer:

|  |
| --- |
|                                                             $000 |
| Cost to date                                        3,600 |
| Loss recognised                                 (300) |
| Progress payments                            (3,780) |
|                                                             (480) |

(This would be the same thing as revenue of $3,300 less progress payment of $3,780, an overpayment of $480.)

1. Revenue in the income statement:

 $000

Cost to date 3,600

Less loss recognised (300)

Revenue for the period 3,300

1. Income statement extract for the year ended 31 March 2010

                                                                                                               $000

Revenue (balancing figure)                                                                    3,300

Cost of sales (same as cost to date because cost basis is used)        (3,600)

Gross loss                                                                                      (300)

1. Balance sheet extract as at 31 March 2010

Current liabilities                                                            $000

Contract prepayment                                      (480)

**Summary points:**

1. Revenue and profits should only be recognized on contracts when the outcome of the contracts can reasonably be ascertained.
2. Where a profit is anticipated on the completion of a contract, the profit should be scaled down by the ratio of billed amount to total contract price (or that of cost to date to expected contract cost).
3. The balance sheet contract value is the sum total of the cost to date plus profits recognized or posses incurred, less progress payment to date.

**Conclusion:**

The management of working capital and the determination of revenue and income on ongoing projects are always going to feature in your work life. Armed with this knowledge will help you to appreciate them and enable you to manage your business better.

**1.6 Group discussions**

1. What constitutes working capital? Explain what constitutes a cash cycle and explain reasons for holding cash.
2. Explain the key components of an inventory management system.
3. Explain the working capital dilemma of a finance manager.
4. Explain how a long term contract is treated in the income statement and the balance sheet.
5. Explain what overtrading means and how it may be detected.