**TRAINING IN FINANCIAL MANAGEMENT FOR ROAD CONTRACTORS**

**MODULE ONE SESSION SIX PARTICIPANTS’ NOTES**

 **FINANCIAL MANAGEMENT PLANNING AND CONTROL**

**1.0 Purpose of the session**

The purpose of this session is;

1. To introduce to the participants the concept of budgetary planning and control
2. To influence a shift from the traditional Incremental Based Budgeting to Activity Based or Zero Based Budgeting approach.
3. To introduce simple variance analysis namely total, usage and efficiency variances and relate them to causes and to persons responsible for them.
4. To introduce the value for money concept
5. To outline and explain the common taxes experienced by a road construction business.

**1.1 Introduction to budgetary control**

 A budget is a financial plan approved by management for a given period or activity. An approved budget becomes a yardstick against which actual performance can be compared with planed performance. It is a tool used to guide and control performance. Therefore in order to make good use of it all activities of the business should be budgeted for and closely monitored. In order to control performance the budget is a management tool that a business executive cannot do without.

In road construction, works are usually broken down into contracts and activities within the contract. Budget estimates should be made for the different contracts and for activities within the contract such that the actual costs are compared with those budgeted in order to monitor and control the profitability of the contract particularly for fixed price contracts.

Road works are usually contracted for through public open tendering when jobs are publicly advertised in print or other media. Budgeting skills become handy in the preparation of tender bids. The bill of materials and labour is converted to cost estimates that are used to offer bids. Once successful, the tender bid becomes a basis upon which a budget to deliver the contract is based. A materials cost budget, a labour cost budget, or a machine cost budget and others are prepared for each main activity or for the whole contract and these are used to monitor and control the planned profits and cost of the works.

Budgetary control refers to the continued comparison between the actual cost and the planned costs, and carrying out variance analysis to determine the nature and cause of variances as well as seeking persons responsible for the variances and establishing accountability.

Analysis of variances is useful for management to make decisions about ongoing contracts. Once identified, further investigations may be carried out to determine underlying causes of the variances, the persons responsible for them, corrective action about an ongoing job or the pricing of future jobs to be competed for.

**1.2 Approach to budgeting**

Whereas incremental budgeting uses historical figures and apply a margin for volume and inflationary adjustments, the most appropriate budgeting approach for contractors is to apply the zero based budgeting that builds up the cost from the basic elements that make up the task. The cost budget should best be built up from the quantity surveyors’ estimates. Activity based budgeting builds up the budget based on activities that are to be performed and for each task identify the input, output, cost and outcome. Using the example of constructing 2kms of road bid by Munaku, below shows an incremental based budget and one built up from the quantity surveyors estimate:

|  |
| --- |
| Munaku's Incremental based bid |
|  Historical cost  |  210,000,000  |
|  Economic mark up 30%  |  63,000,000  |
|  Expected cost  |  273,000,000  |
|  Margin 30%  |  81,900,000  |
|  Price  |  354,900,000  |
|  Rounded up  |  355,000,000  |

As compared to a zero based budget below, the incremental budget understated the cost and therefore the tender price by 14%. In construction such underestimate can be catastrophic. In this example, using the incremental budgeting approach underestimated cost of works by shillings 138 million! (Shs 311-273).

|  |
| --- |
| Ideal Zero Based Budget bid |
| Item | cost per unit | Quantity | Cost |
| Materials: Gravel in tonnes |  5,000  |  20,000  |  100,000,000  |
| Machine hire in hours |  400  |  200,000  |  80,000,000  |
| Fuel for machines in lts |  40,000  |  3,000  |  120,000,000  |
| Direct labour (man days) |  900  |  10,000  |  9,000,000  |
| Supervision (man months) |  4  |  500,000  |  2,000,000  |
| Total cost |  |  |  311,000,000  |
| Margin 30% |  |  |  93,300,000  |
| Bid price |  |  |  404,300,000  |

The outcome could have been the opposite, if the cost and therefore the bid price could have been overstated instead, thereby rendering the bid uncompetitive. Either way it would not serve the interest of the business. The zero based budgeting approach should remain the preferred approach to costing in road construction.

**1.3 Typical variances in road construction:**

Budgetary control involves a comparison between what actual production ought to have cost and what it actually cost. The tree basic variances are:

1. Total cost variance is the difference between budgeted and actual expenditure

i.e.(budgeted cost less actual cost). The total cost budget is the sum of the usage variance and the price variance.

1. Material usage variance is the difference in the quantity of materials used at the budgeted price, i.e. It is equal to ( budgeted quantity less actual quantity) times the budgeted price.
2. Material price variance is the difference in price of the actual quantity used, It is equal to actual quantity used times (budgeted price less actual price).
3. Labour efficiency variance is the difference in labour time used at the budgeted labour rate, i.e. (budgeted time less actual time) times budgeted rate.
4. Labour rate variance

This is the variance due to the difference in remuneration rate. It is equal to the difference in the rates times the number of labour hours. The labour rate variance equals actual labour hours taken times (the budgeted labour rate less the actual rate).

The variances for the 2kms job Munaku carried out with the associated responsibility is summarised below (computations are indicated at the end of the notes):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Usage** | **Price** | **Efficiency** | **Total** |
|  |  |  |  |  |
| **Gravel** |  **(100,000,000)** |  **20,000,000**  |  |  **(80,000,000)** |
|  **Machine**  |  |  **-**  |  **16,000,000**  |  **16,000,000**  |
|  **Fuel**  |  **(18,000,000)** |  **(5,700,000)** | **24,000,000**  |  **300,000**  |
|  **Labour**  |  |  **(7,500,000)** |  **(6,000,000)** |  **(13,500,000)** |
| **Total variance** |  **(118,000,000)** |  **6,800,000**  |  **34,000,000**  |  **(77,200,000)** |
| **Budgeted profit** |  |  |  |  **93,300,000**  |
| **Actual profit** |  |  |  |  **16,100,000**  |
|  |  |  |
|  | **Probable responsibility for the variances.**  |  |
|  **Variance due to machine operator**  |  **40,000,000**  |  |
|  **Variance due to Purchaser**  |  |  **6,800,000**  |  |
|  **Variance due to supervisors (118,000,000 + 6,000,000)** |  **(124,000,000)** |  |
| **Total profit variance** |  |  |  **(77,200,000)** |  |

(Colour indicate the composition of the figures that make up the total for responsibility)

**1.4 Responsibility (accountability) for variances**

It is important to investigate causes and persons responsible for variances in order to determine the appropriate corrective action to take.

Purchasers are usually responsible for price related variances. However the purchasing unit could be responsible at times for usage variances if the materials are not of the expected quality. Poor quality materials could result in adverse usage variance while favourable usage variance could be a result of better quality materials that cost a higher price than expected.

Supervisors are usually responsible for usage variances. Poor materials could be the cause of an adverse usage variance and vice versa.

A machine will have a favourable machine efficiency variance if it does work quicker than expected. It will have an adverse machine efficiency variance if it works slower than expected. Machine operators could be responsible for machine efficiency variances. However, those responsible to hire equipment or to train machine operators or staff generally could also be responsible for efficiency rates. For example if machinery hired was not well maintained it will become less efficient resulting into an adverse efficiency variance. Thus persons responsible for maintenance of equipment could cause machine inefficiency variances. Poorly trained staff may also be the cause of inefficiency variances.

**1.5 Value for money concept**

Value for money refers to utilizing resources most effectively and efficiently in order to get desired quality results cheapest and quickest. It involves **maximising quality** obtained but **minimizing** input resources including **time**. To maximize value for money requires stretching resources to the maximum. It requires focusing not only at output but also the outcome compared to the resources expended. A good example is when a borehole is constructed. The output is a well-functioning borehole. However if the borehole is contracted to the best quality but at a location where there are no people, then there is no value for money provided!

In road construction, value for money means having integrity to comply with designs, being frugal and avoiding wastage, having speed in completing the work being done and delivering works that have durability.

**1.6 Value for money consciousness**

Value for money awareness should become an institutional culture such that works are conceived, planned, executed and evaluated bearing in mind value for money, including quality and time. For any works that are going on assess the output, the outcome and the resources to be consumed for value for money. Thus, check that the desired output occurs, that the expected outcome is realized and that the processes are cost effective. At every stage of the construction keep asking what could be done better if any in order to improve value. Given what has taken place already, ask what else can now be done to improve the outcome.

**1.7 Common taxes and statutory obligations that affect costs:**

Taxes are usually disregarded by contractors when bidding for works whereas taxes in most cases will affect cost and if not properly handle will reduce the bottom line for the contractors. A road contractor should be aware of the common taxes that are normally incurred and incorporate them in their cost estimates. Such taxes include: Trade license that is annual, Value Added Tax, Corporation Tax assessed on profits, rates and ground rent assessed on land, withholding tax that is a deduction from income and is recoverable as a tax deposit; Pay As You Earn that is deducted from staff salaries, district/sub-county levy and local services tax. Although NSSF is strictly not a tax, it is a heavy cost that requires a contribution of 10% of the wages bill to the social security benefit of workers on a monthly basis. Workers compensation insurance and third party insurance on vehicles are also mandatory and to an extent are similar to taxes.

Many contractor fail to obtain documentation of withholding tax payments to revenue authority and therefore miss the tax credit benefit. In such a circumstance, withholding tax becomes an expense to the business.

**1.8 Discussion topics:**

1. With reference to the case study, suggest a simple budget for Munaku to rehabilitate 2km of road with 2nd grade gravel.
2. Outline the weakness of the pricing method of Munaku and analyze why Munaku did not realize his anticipated profit.
3. Using the availed budget work out the usage, price and efficiency variances and explain possible causes.
4. Explain what you understand by value for money and why a road contractor should aspire to deliver value worthy.
5. Identify possible taxes levied on a road contractor and show how they relate to contract costing.

**1.9 Solutions to budgeting case study**

**1. The incremental based budget:**

|  |
| --- |
| Munaku's Incremental based bid |
|  Historical cost  |  210,000,000  |
|  Economic mark up 30%  |  63,000,000  |
|  Expected cost  |  273,000,000  |
|  Margin 30%  |  81,900,000  |
|  Price  |  354,900,000  |
|  Rounded up  |  355,000,000  |

**2.** The zero based budget:

|  |
| --- |
| Ideal Zero Based Budget bid |
| Item | Quantity | Cost per unit | Cost |
| Materials: Gravel in tonnes | 5,000 | 20,000 |  100,000,000  |
| Machine hire in hours | 400 | 200,000 |  80,000,000  |
| Fuel for machines in litres | 40,000 | 3,000 |  120,000,000  |
| Direct labour (man days) | 900 | 10,000 |  9,000,000  |
| Supervision (man months) | 4 | 500,000 |  2,000,000  |
| Total cost |  |  |  311,000,000  |
| Margin 30% |  |  |  93,300,000  |
| Bid price |  |  |  404,300,000  |

3. Actual cost of works and loss:

|  |  |
| --- | --- |
|  | Actual cost of works |
| Item | Cost per unit | Quantity | Actual cost |
| Materials gravel in tonnes | 10,000 | 18,000 | 180,000,000 |
| Machine hire in hours | 320 | 200,000 | 64,000,000 |
| Fuel for machines in litres | 38,000 | 3,150 | 119,700,000 |
| Direct labour (man days) | 1,500 | 15,000 | 22,500,000 |
| Supervision (man months) | 4 | 500,000 | 2,000,000 |
| Total cost |  |  | **388,200,000** |
|  |  |  |  |
| Bid price |  |  | **355,000,000** |
| Net loss (Bid price less total cost) |  |  | **(33,200,000)** |

4. Why Munaku did not realize the anticipated profits:

|  |  |  |
| --- | --- | --- |
| Munaku’s budgeted profits | 82,000,000 | Shs. 355m less 273m |
| Cost variance | **(115,200,000)** | Expected incremental cost less actual cost |
| Revenue variance | **-** | Actual revenue less budgeted revenue |
| Profit margin (loss) | **(33,200,000)** | Actual loss |

5. Variance analysis:

Refer to summary variance table in the notes above.

Total adverse profit variance of shs 77,200,000 is the zero based budgeted profit of shs 93,300,00 less actual profit of shs 16,100,000. It is broken down into the following variances: (A stands for adverse or unfavourable, F stands for favourable)

6. Materials cost total variance:

|  |  |  |
| --- | --- | --- |
| Budgeted cost | 5,000 tonnes at shs20,000 | 100m |
| Less Actual cost | 10,000 tonnes at shs18,000 | 180m |
| Total variance |  | 80mA |

6a. Materials usage variance:

|  |  |  |
| --- | --- | --- |
|  | (budgeted quantity – actual quantity) x budgeted price |  |
|  | (5,000-10,000)x shs 20,000 | 100mA |

6b. Materials price variance:

|  |  |
| --- | --- |
| (budgeted price – actual price) x actual quantity |  |
| (Shs18,000-20,000)10,000 | 20mF |

7. Labour cost total variance:

|  |  |  |
| --- | --- | --- |
| Budgeted cost | 900 man days at shs10,000 | 9m |
| Less Actual cost | 1,500 man days at shs15,000 | 22.5m |
| Total variance |  | 13.5mA |

**7a. Labour efficiency variance:**

|  |  |
| --- | --- |
| (budgeted man days – actual man days) x budgeted rate |  |
| (900-1,500)x shs 10,000 | 6mA |

**7b. Labour rate variance:**

|  |  |
| --- | --- |
| (budgeted labour rate – actual labour rate) x actual man days |  |
| (Shs10,000-15,000) x 1,500 | 7.5mA |

**8. Machine cost total variance:**

|  |  |  |
| --- | --- | --- |
| Budgeted cost | 400 hours at shs 200,000 | 80m |
| Less Actual cost | 320 hours at shs200,000 | 64m |
| Total variance |  | 16mF |

**8a. Machine efficiency variance:**

|  |  |
| --- | --- |
| (budgeted hours – actual hours) x budgeted rate |  |
| (400 -320) x shs 200,000 | 16mF |

**8b. Machine rate variance:**

|  |  |
| --- | --- |
| (budgeted machine rate – actual machine rate) x actual machine hours |  |
| (Shs200,000-200,000) x 320 | 0m |

**9. Fuel cost total variance:**

|  |  |  |
| --- | --- | --- |
| Budgeted cost | 40,0000lts at shs 3,000 | 120m |
| Less Actual cost | 38,000 lts at shs 3,150 | 119.7m |
| Total variance |  | 0.3mF |

**9a. Fuel usage variance**

|  |  |
| --- | --- |
| (budgeted quantity for actual hrs– actual quantity) x budgeted price |  |
| (32,000-38,000)x shs 3,000 | 18mA |

**9b. Fuel efficiency variance**

|  |  |
| --- | --- |
| (budgeted quantity– budgeted quantity for actual hrs) x budgeted price |  |
| (40,000-32,000)x shs 3,000 | 24mF |

**9c. Fuel price variance:**

|  |  |
| --- | --- |
| (budgeted price – actual price) x actual quantity |  |
| (Shs 3,000-3,150) x 38,000 | 5.7A |