

## **An Assessment Task for First Year Management Accounting**

**Ross Kirkham**

University of the Sunshine Coast  
Australia

**Gregory K. Laing**

University of the Sunshine Coast  
Australia

### **Abstract**

*The use of a Practice set (case simulation) as an assessment task in management accounting is aimed at providing students with a practical experience in the application of a form of simulated real-world events. The pedagogical justification for the use of a case simulation is inherent in the concept referred to as "learn-by-doing" effectively this implies that students are more likely to gain a deeper understanding of the knowledge and skills involved by having to complete a specific task.*

**Key words:** *Management accounting; costing; practice set; case simulation; environmental cost.*

**JEL Classification:** M41

**PsycINFO Classification:** 3550

**FoR Code:** 1302; 1501

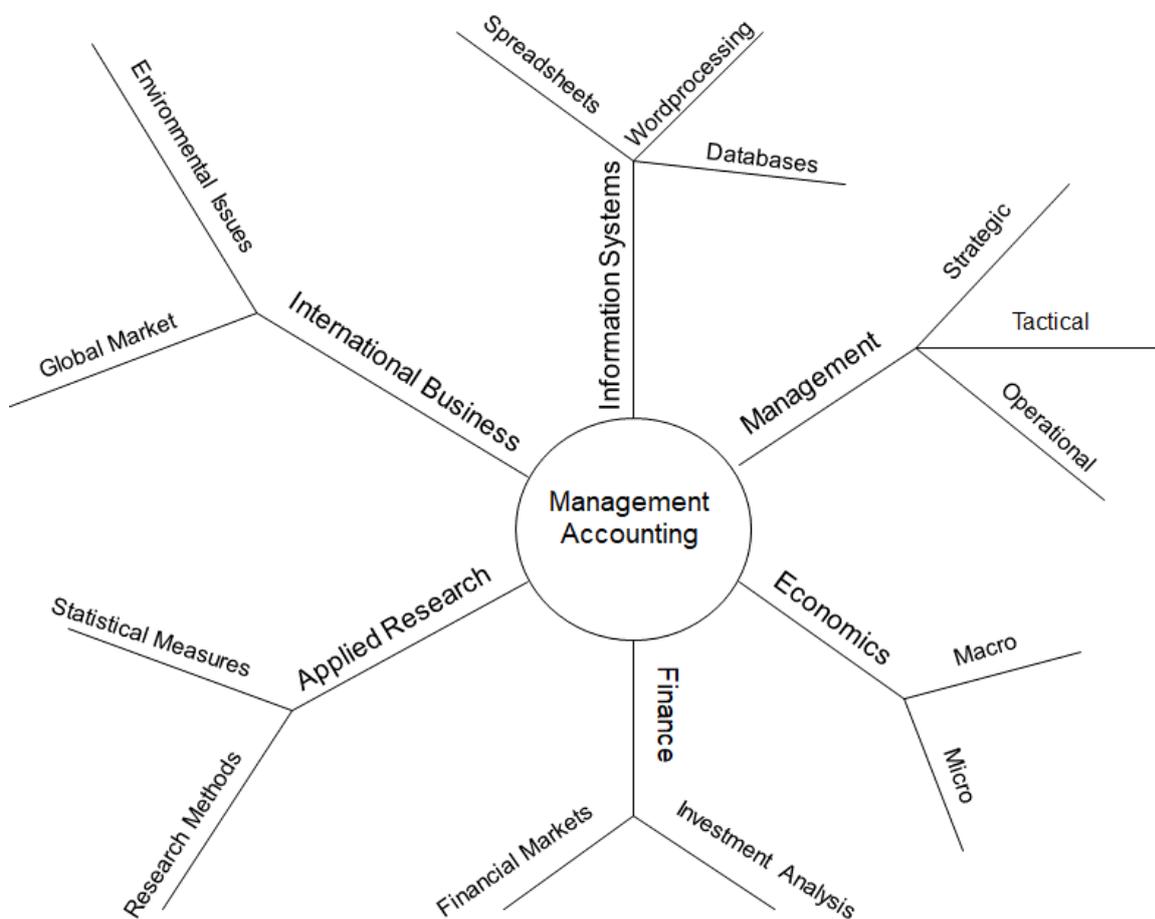
**ERA Journal ID#:** 35696

## Introduction

Management accounting is a field of study that evolved from what was traditionally referred to as 'cost accounting' (Böer, 2000). As a field of study it encompasses a greater range of technical skills and knowledge which drawn from various disciplines such as: management; economics; finance; applied research; international business; and information systems (Scapens, 2006; Siegel et al. 2010; Shields, 2015). Students are provided with a diagram that emphasises the diverse range of disciplines which underpin the conceptual framework of management accounting refer Diagram 1. Due to the emphasis on financial accounting education the resources available for management accounting education have not been abundant (Albrecht & Sack, 2000), particularly for introductory management accounting courses (Botes & Sharma, 2017). Considering the three key factors driving change in the accounting discipline: (1) changes in "technology", (2) the "globalization" of the world's economy and (3) the "concentration of power among certain market investors." (Albrecht & Sack, 2001,18) any activity needs to include aspects that address these factors. Research has shown that activities that create an experience can enhance student learning and develop student confidence and competence (Pollack & Lilly, 2008) – this may be achieved by - increasing students' involvement in the learning process (Morgan et al. 1987; Slavin 1980). Problem-based learning is a student-centered approach targeted at relevant problems intended to encourage students towards a deep learning through application and integration of knowledge (Biggs,1988; 1996; Walsh, 2007). In effect this is consistent with the concept of learning by doing.

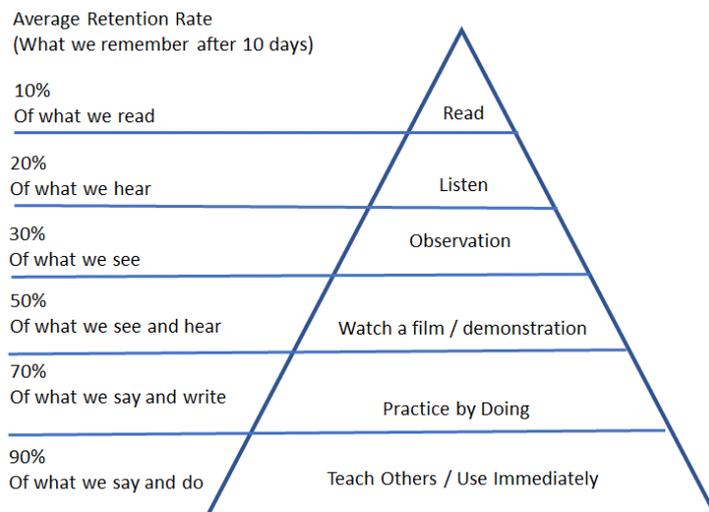
### Diagram 1.

*A Conceptual Framework for Management Accounting*



The concept of learning by doing (Anzai & Simon, 1979; Stull & Mayer, 2007) can be simply described as involving experiential learning (Kolb, 1984) or active learning (Bonwell & Sutherland, 1996). Experiential learning was defined as 'the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience' (Kolb 1984, 41). The experiential learning model of Kolb (1984) has been shown (Svinicki & Dixon, 1987; Chen et al, 2020) as integral in supporting the development of problem solving skills and as being beneficial regardless of different learning styles. Active learning 'involves students in doing things and thinking about the things they are doing' (Bonwell & Eison, 1991, 2). In essence both theoretical models are linked with the concept of learning by doing (Chang, Gomes, & Schorfheide, 2002; Hawtrey, 2007; Bergsteiner, Avery & Neumann, 2010). Experiential learning has been used by various disciplines to cover discipline specific learning objectives such as, accounting (Eckardt, Selen & Wynder, 2015), business statistics (Hakeem 2001), organizational theory (Blunsdon, Reed, McNeil & McEachern 2003), marketing (Sautter, Pratt & Shanahan 2000), and macro economics (Gremmen & Potters 1997).

## Diagram 2. The Learning Pyramid



Source: Learning Pyramid (Adapted from National Training Laboratories Bethel, Maine, USA)  
<https://www.ntl.org/>

## Learning Objectives

The learning objectives of the task are aligned with the learning outcomes of a first year management accounting course. In general these learning objectives are summarised as encompassing:

*Creative and Critical Thinking:* the ability to reason logically, to analyse, to deconstruct, synthesise and evaluate data, evidence and arguments and potentially create new objects.

- each student is required to analyse the case and use appropriate analytical techniques to identify and solve a business problem.

*Empowered:* the opportunity to apply theory to practice; to consider authentic contexts and develop and demonstrate cognitive and technical skills, attitudes and abilities directly related to the field of study.

- each student has to use discipline specific knowledge to identify relevant industry issues and make recommendations pertinent to the case as presented.

*Knowledgeable: demonstrate core theoretical, content and practical elements in a discipline.* While advanced knowledgeable demonstrates an understanding of the value of multidisciplinary knowledge.

- each student has to develop quality communication reports that demonstrate a clear understanding of the management accounting principles and the extent of their knowledge.

*Sustainability Focussed: considering the wider implications of a practice, idea or concept and the interdependence between economic, social and ecological systems - consider implications for future generations.*

- each student has to demonstrate a clear understanding of the implications of economic, social and ecological / environmental issues.

## Implementation Guidelines

Students are provided with the following general instructions. The aim of the practice set case simulation task is for you to use appropriate analytical techniques to identify and solve a business problem; to demonstrate an appropriate level of subject matter knowledge; then present information in an organised and concise manner with ideas clearly stated.

This is an individual assessment. The report should be presented in a Business Report Format. The use of a spreadsheet is essential to assist in the computation and justification of this assignment.

Details of the Business Report Format will be placed on Blackboard.

Your business report should follow the basic structure of a business report. That is, you should provide the following:

- A cover page (the Topic, the Company, your name);
- An executive summary (a short summary of the main issues/findings/recommendations);
- An introduction (consisting of three sections – the purpose, scope and limitations -in a brief form);
- The body of the report – should address the requirements of the task;
- A conclusion – where appropriate;
- References (used only to justify methods or interpretations);
- Appendices (as and if required eg formulas and/or calculations).

## The Practice Case Simulation Overview

### Major Assignment Task

The practice set (case simulation) details and instructions provided to the students are as follows:

*This assignment is to be submitted by special submission place in Blackboard. (To be processed through Safe Assignment).*

An exhaustive marketing process has identified that the introduction of a new exciting product should result in monthly sales as shown in Table 1. Christmas demand is expected to provide a strong launch for the product. Demand is then expected to fall from the peak to a steady figure as shown in Table 1.

**Table 1 Predicted monthly unit sales**

Dec	Jan	Feb	Mar	Apr	May
150,000	200,000	130,000	110,000	90,000	90,000

Mudjimba Manufacturers are to manufacture the items on licence for Inspired Ltd who will distribute the product to the retailers. This assignment requires you to provide budgets for two entities. They are the distributor, 'Inspired Ltd' and the manufacturer of the goods, 'Mudjimba Manufacturers'.

## Notes

### Inspired Ltd (the Distributor)

1. A premium selling price of \$500 is reliably expected to be achieved in the first two months due to the expected popularity and the uniqueness of the item. The selling price is expected to be reduced by 20% for each subsequent month up to and including April until the demand steadies as other manufacturers and distributors rush to duplicate the product and supply the retailers. From April it is anticipated that the selling price will remain steady.
2. To allow for timely distribution, Inspired Ltd requires Mudjimba Manufacturers to have the monthly demand manufactured and supplied to them one month in advance. (December's sales should be manufactured and delivered in November etc)
3. Inspired Ltd has indicated that they will pay Mudjimba Manufacturers \$150 per unit. This will be paid within thirty days. That is if the December units are delivered in November as expected Mudjimba Manufacturers will be paid in full in December.
4. Inspired Ltd has indicated that they expect to have \$1,000,000 cash in their bank account at the end of November.
5. Inspired Ltd will guarantee to supply the product to the retailers at a price that will allow them to achieve thirty percent (35%) of the expected selling price as a selling profit.
6. Inspired Ltd has a varying relationship with the retailers insofar as Credit sales collection goes. They estimate all sales will be on a credit basis with collections as follows.
  - Current Month 20%
  - 30 Days 70%
  - 60 days 10%
7. Inspired Ltd has calculated that they will have cash expenses of \$2,000,00 each month in addition to payments made to Mudjimba Manufacturers. These expenses will commence in December.

## Mudjimba Manufacturers Ltd (the Manufacturer)

The management of Mudjimba Manufacturers Ltd have calculated and budgeted for the labour and materials usage requirements in Table 2. *[This area can be extended to include a variation to labour hours at specific level of manufacture to demonstrate the concept of a learning curve effect and how a change in units produced could well / will affect the labour time per completed unit.]*

**Table 2 Material Requirements**

Mudjimba Manufacturers Unit Material Requirements	
Labour Hours	0.60
Material A Kgs	3
Material B Kgs	6
Material C Kgs	1

Management estimates for labour and material costs are displayed in Table 3. Management estimate that there will be \$200,000 overhead costs to be factored into the budget. *[This area can be extended to include a variation material costs at specific levels of manufacture to examine what if circumstances for bulk discounts on material costst.]*

**Table 3 Manufacturing Costs**

Mudjimba Manufacturers Manufacturing Costs \$	
Labour Per Hour	35.00
Material A Per Kg	3.00
Material B Per Kg	6.00
Material C Per Kg	12.00
Overhead (Monthly)	200,000.00

Mudjimba Manufacturers anticipates delivery of all necessary materials without any lag time. They can be supplied to them on the first of November when they will start production. Purchase of the necessary supplies for manufacture will be paid on the following credit terms:

- Current Month 20%
- 30 Days 60%
- 60 days 20%

All Labour costs and overheads must be paid in the current month. Mudjimba Manufacturers reports that they expect to have \$2,000.00 in cash at the beginning of November.

### Required:

1. Complete a cash budget for **Inspired Ltd** for the months of December, January, February and March.
2. Complete a **Production** budget for **Mudjimba Manufacturers Ltd** Manufacturer for the months of November, December, January and February.
3. Complete a **Material** budget for **Mudjimba Manufacturers Ltd** Manufacturer for the months of November, December, January and February.
4. Complete a **Labour** budget for **Mudjimba Manufacturers Ltd** Manufacturer for the months of November, December, January and February.
5. Complete a Cash budget for **Mudjimba Manufacturers Ltd** Manufacturer for the months of November, December, January and February.

### Additional Questions (Required) to be Answered:

1. The financial controller of the manufacturer Mudjimba Manufacturers Ltd, Jane Crane, seeks your advice on problems she perceives with setting budget targets.
  - a) Explain to Jane Crane (Controller) why the use of budgets as performance targets can lead to behavioral problems such as budgetary slack (budget padding).
  - b) Explain to Jane Crane (Controller) the potential advantages and disadvantages that can arise from the practice of participative budgeting in the preparation of the Master Budget.
2. Cash Management.
  - a) Provide advice to both Inspired Ltd and Mudjimba Manufacturers on strategies to overcome any temporary shortages of cash they might experience. What consequences might ensue if such measures were not put in place?
  - b) Provide advice to Inspired Ltd and Mudjimba Manufacturers on the consequences of carrying too much cash.
3. Mudjimba Manufacturers have examined and categorized their spending on a similar project that revealed the following spending on environmental costs. Refer to Table 4.

**Table 4 Environmental Costs**

<b>Sales Revenue</b>		<b>\$4,200,000</b>
<b>Selected Operating Costs:</b>		
Initial evaluation of environmental standing of new suppliers	\$2,500	
Treating and disposing of toxic waste	\$230,000	
Cleaning up chemically contaminated soil	\$250,000	
Testing for contamination	\$20,000	
Maintaining pollution equipment	\$30,000	
Operating pollution equipment	\$15,500	
Performing environmental studies	\$3,000	
Revising evaluation of some existing suppliers	\$1,000	
Training employees (environmental)	\$1,500	
Inefficient material usage	\$80,000	
<b>Total Operating Costs (which includes the above items)</b>		<b>\$3,000,000</b>
Profit		<b>\$1,200,000</b>

**Environmental Cost Requirement:**

Prepare an environmental cost report using the four environmental cost categories (Prevention, Detection, Internal Failure, External Failure). Provide the relative distribution percentages for each of the environmental cost categories (against total cost and sales) and a brief strategy for prioritizing spending on environmental cost categories intended to reduce negative outcomes.

**Assessment Method**

To enhance the comprehension of the method of assessment process the students are provided with a rubric (refer to Diagram 3) which is aligned with the learning objectives and the extent of the level of performance that is expected to achieve any one of the different grades. Assessment is made based on the levels as identified in the Marking Rubric for each of the requirements stipulated in the assignment details. The report is also evaluated for its relevance and appropriateness, consideration is given to any justifications provided or assertions pertaining to the calculations. The final analysis is concerned with the extent that the projections impact upon the performance over the period.

The following alphabetical index is used to link the various sections in the Assessment Rubric to the learning outcomes:

- (A) *Creative and Critical Thinking: the ability to reason logically, to analyse, to deconstruct, synthesise and evaluate data, evidence and arguments and potentially create new objects.*

- each student is required to analyse the case and use appropriate analytical techniques to identify and solve a business problem.
- (B) *Empowered*: the opportunity to apply theory to practice; to consider authentic contexts and develop and *demonstrate cognitive and technical skills, attitudes and abilities directly related to the field of study*.
- each student has to use discipline specific knowledge to identify relevant industry issues and make recommendations pertinent to the case as presented.
- (C) *Knowledgeable*: *demonstrate core theoretical, content and practical elements in a discipline*. While advanced knowledgeable demonstrates an understanding of the value of multidisciplinary knowledge.
- each student has to develop quality communication reports that demonstrate a clear understanding of the management accounting principles and the extent of their knowledge.
- (D) *Sustainability Focussed*: considering the wider implications of a practice, idea or concept and the interdependence between economic, social and ecological systems - consider implications for future generations.
- each student has to demonstrate a clear understanding of the implications of economic, social and ecological / environmental issues.

**Diagram 3.**  
Case Study Assessment Rubric

Business Report					
Issue / Criteria	Excellent	Very Good	Good	Satisfactory	Less than Satisfactory
Inspired Ltd Cash Budget <b>10%</b> <b>(A) &amp; (B)</b>	Exemplary work! Budget is completely correct no mistakes. Demonstrated <b>highly astute</b> knowledge with <b>comprehensive</b> level of application & understanding.	Budget is correct.  Demonstrated <b>comprehensive</b> level of application and understanding.	Budget is mostly correct.  Demonstrated understanding & ability to apply knowledge.	Budget is not all correct.  Demonstrated <b>minimum/ limited</b> understanding and knowledge.	Budget is not correct. Mostly wrong.  Understanding & knowledge <b>not demonstrated</b> .
Mudjimba Budgets <b>20%</b> • Production • Material • Labour • Cash <b>(A) &amp; (B)</b>	Exemplary work! Budgets are completely correct no mistakes. Demonstrated <b>highly astute</b> knowledge with <b>comprehensive</b> level of application & understanding.	Budgets are correct.  Demonstrated <b>comprehensive</b> level of application and understanding.	Budgets are mostly correct.  Demonstrated understanding & ability to apply knowledge.	Budgets are not all correct.  Demonstrated <b>minimum/ limited</b> understanding and knowledge.	Budgets are not correct. Mostly wrong.  Understanding & knowledge <b>not demonstrated</b> .
Specific Issues <b>40%</b> Addressing: • Budget Targets • Cash Management <b>(A), (B) &amp; (C)</b>	Demonstrated and <b>astutely</b> applied <b>comprehensive</b> knowledge of topic. Comments and. A compelling argument.	Demonstrated and applied <b>comprehensive</b> knowledge of topic. Comments and. A convincing argument.	Demonstrated and applied knowledge of topic.  A pertinent valid argument.	Demonstrated and <b>partially</b> applied knowledge of topic.  A mostly valid argument.	Wrote generally about the topic lacked evidence of knowledge of the topic.  Argument loosely related to the topic.
Environmental Costs <b>30%</b> <b>(D) &amp; (A)</b>	Demonstrated and <b>astutely</b> applied <b>comprehensive</b> knowledge of topic. A compelling argument.	Demonstrated and applied <b>comprehensive</b> knowledge of topic. A convincing argument.	Demonstrated and applied knowledge of topic.  A pertinent valid argument.	Demonstrated and <b>partially</b> applied knowledge of topic.  A mostly valid argument.	Wrote generally about the topic lacked evidence of knowledge of the topic.  Argument loosely related to the topic.

## Summary

In this practice set (case simulation) students are required to employ spreadsheet skills to create the budgets and to then use them in constructing their reports. The use of a learning management system (LMS) such as Blackboard is useful in regards to the submission and monitoring of potential plagiarism.

This paper describes a straightforward pedagogical tool that can be used in an introductory management accounting course – there is one requirement which is that sufficient time should be allotted to introduce the concepts prior to students being required to undertake the assignment. Students benefit from this assignment as it gives them the opportunity to apply the concepts there by learning-by-doing and the case simulation details whilst simple are sufficient to give the appearance being relevant and consistent with an actual business environment.

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**Appendix A.***Example of Marking Allocation using an Excel Spreadsheet*

<i>Topics</i>	<i>Marks</i>
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**Inspired Cash Budget Allocations**

Cash Receipts	3
Cash Payments	3
Ending Cash Balances	4

**Mudjimba**

Production - Units to be Produced	3
Material - Cost of Purchases	4
Labour - Cost of Direct Labour	3
Cash Budget:	
Cash Receipts	3
Cash Payments	3
Ending Cash Balances	4

**Additional Questions**

1a	Explain budget behavioural problems	10
1b	Explain advantages & Disadvantages	10
2a	Advise on strategies to overcome shortages	10
2b	Advise on consequences of too much cash	10
3a	Prepare Cost Report	15
3b	Advise strategy - priorities & reduce negative outcomes	15

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<b>Total</b>	<b>100</b>
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This mark will be converted to a score out of 40

## Appendix B. Inspired Budgets

### Inspired Ltd Sales Budget for the period ended 31st May 2013

		Dec	Jan	Feb	Mar	Apr	May
% Reduction in SP	20%						
Expected sales (units)		150,000	200,000	130,000	110,000	90,000	90,000
Selling price		500	500	400	320	256	205
Retailers Share	30%	150	150	120	96	77	61
Distributor's Share		350	350	280	224	179	143
Total Distributor's revenue		\$52,500,000	\$70,000,000	\$36,400,000	\$24,640,000	\$16,128,000	\$12,902,400

### Inspired Ltd Schedule of Receipts

Month	Sales	Dec	Jan	Feb	Mar	Apr	May
Current month	20%	\$10,500,000	\$14,000,000	\$7,280,000	\$4,928,000	\$3,225,600	\$2,580,480
30 Days	70%		\$36,750,000	\$49,000,000	\$25,480,000	\$17,248,000	\$11,289,600
60 Days	10%			\$5,250,000	\$7,000,000	\$3,640,000	\$2,464,000
<b>Total</b>		\$10,500,000	\$50,750,000	\$61,530,000	\$37,408,000	\$24,113,600	\$16,334,080

### Inspired Ltd Cash budget for the period ended March 2013

	Dec	Jan	Feb	Mar
<b>Cash Receipts</b>				
Cash Sales	-	-	-	-
Receipts from Debtors	\$ 10,500,000	\$ 50,750,000	\$ 61,530,000	\$ 37,408,000
<b>Total Cash Receipts</b>	\$ 10,500,000	\$ 50,750,000	\$ 61,530,000	\$ 37,408,000
<b>Cash Payments</b>				
Stock	22,500,000	30,000,000	19,500,000	16,500,000
Other Expenses	2,000,000	2,000,000	2,000,000	2,000,000
<b>Total Cash Payments</b>	24,500,000	32,000,000	21,500,000	18,500,000
Net Cashflow	- 14,000,000	18,750,000	40,030,000	18,908,000
Bank Balance at start of month	1,000,000	- 13,000,000	5,750,000	45,780,000
Bank Balance at end of month	-\$ 13,000,000	\$ 5,750,000	\$ 45,780,000	\$ 64,688,000

**Appendix C.***Mudjimba Materials & Labour Budget*

**Mudjimba Ltd**  
**Sales Budget for the period ended 31st May 2013**

	Dec	Jan	Feb	Mar	Apr	May
Expected sales (units)	150,000	200,000	130,000	110,000	90,000	90,000
Units selling price	150	150	150	150	150	150
Total sales revenue	\$22,500,000	\$30,000,000	\$19,500,000	\$16,500,000	\$13,500,000	\$13,500,000

**Mudjimba Ltd**  
**Production Budget for the period ended 28th February 2013**

	Nov	Dec	Jan	Feb
Expected unit sales (refer sales budget)	150,000	200,000	130,000	110,000
Add Desired ending inventory				
Total required units				
Less Beginning inventory				

**Mudjimba Ltd**  
**Materials Budget for the period ended 28th February 2013**

	Nov	Dec	Jan	Feb
Units to be produced (refer production budget)	150,000	200,000	130,000	110,000
Material KGs				
Material A Per KG	3	450,000	600,000	390,000
Material B Per KG	6	900,000	1,200,000	780,000
Material C Per KG	1	150,000	200,000	130,000
Cost of Materials required for production				
Material A \$	3	1,350,000	1,800,000	1,170,000
Material B	6	5,400,000	7,200,000	4,680,000
Material C	12	1,800,000	2,400,000	1,560,000
Total Material Cost	\$ 8,550,000	\$ 11,400,000	\$ 7,410,000	\$ 6,270,000

**Mudjimba Ltd**  
**Labour budget for the period ended 28th February 2013**

	Nov	Dec	Jan	Feb
Units to be produced (refer production budget)	150,000	200,000	130,000	110,000
Labour Hours	0.6	90,000	120,000	78,000
Labour cost per hour	\$ 35.00			
Total labour cost	\$ 3,150,000.00	\$ 4,200,000.00	\$ 2,730,000.00	\$ 2,310,000.00

**Appendix D.**  
*Mudjimba Cash Budget*

**Mudjimba Ltd**  
**Sales Budget for the period ended 31st May 2013**

	Nov	Dec	Jan	Feb	Mar	April
Expected sales (units)	150,000	200,000	130,000	110,000	90,000	90,000
Units selling price	150	150	150	150	150	150
Total sales revenue	\$22,500,000	\$30,000,000	\$19,500,000	\$16,500,000	\$13,500,000	\$13,500,000

**Mudjimba Ltd**  
**Cash budget for the period ended March 2013**

	Nov	Dec	Jan	Feb
<b>Cash Receipts</b>				
Cash Sales	\$0	\$22,500,000	\$30,000,000	\$19,500,000
Receipts from Debtors	\$ -	\$ -	\$ -	\$ -
<b>Total Cash Receipts</b>	\$ -	\$ 22,500,000	\$ 30,000,000	\$ 19,500,000
<b>Cash Payments</b>				
Stock	20% 1,710,000	2,280,000	1,482,000	1,254,000
	60%	5,130,000	6,840,000	4,446,000
	20%		1,710,000	2,280,000
Labour	3,150,000	4,200,000	2,730,000	2,310,000
Overhead Costs	200,000	200,000	200,000	200,000
<b>Total Cash Payments</b>	5,060,000	11,810,000	12,962,000	10,490,000
Net Cashflow	- 5,060,000	10,690,000	17,038,000	9,010,000
Bank Balance at start of month	2,000,000	- 3,060,000	7,630,000	24,668,000
Bank Balance at end of month	-\$ 3,060,000	\$ 7,630,000	\$ 24,668,000	\$ 33,678,000

## Appendix E.

### Environmental Cost Budget

<b>Sales Revenue</b>		<b>\$ 4,200,000</b>		
<b>Selected Operating Costs:</b>				
Initial evaluation of environmental standing of new suppliers	\$2,500			
Treating and disposing of toxic waste	\$230,000			
Cleaning up chemically contaminated soil	\$250,000			
Testing for contamination	\$20,000			
Maintaining pollution equipment	\$30,000			
Operating pollution equipment	\$15,500			
Performing environmental studies	\$3,000			
Revising evaluation of some existing suppliers	\$1,000			
Training employees (environmental)	\$1,500			
Inefficient material usage	\$80,000			
<b>Total Operating Costs (which includes the above items)</b>		<b>\$3,000,000</b>		
Profit		<b>\$1,200,000</b>		
<b>Prevention</b>				
Initial evaluation of environmental standing of new suppliers	2500			
Performing environmental studies	3000			
Training employees (environmental)	1500	7000	0.23%	0.17%
<b>Detection</b>				
Testing for contamination	20000			
Revising evaluation of some existing suppliers	1000	21000	0.70%	0.50%
<b>Internal</b>				
Treating and disposing of toxic waste	230000			
Maintaining pollution equipment	30000			
Operating pollution equipment	15500	275500	9.18%	6.56%
<b>External</b>				
Cleaning up chemically contaminated soil	250000			
Inefficient material usage	80000	330000	11.00%	7.86%
<b>Totals</b>	<b>633500</b>	<b>633500</b>	<b>21.12%</b>	<b>15.08%</b>