



NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF MANAGEMENT SCIENCES

COURSE CODE: BFN 409

COURSE TITLE: PROJECT EVALUATION

COURSE GUIDE

BFN 409 (PROJECT EVALUATION)

National Open University of Nigeria, Headquaters

14/16 Ahmadu Bello Way, Victoria Island Lagos

Course Code: BFN 409

Course Title: Project Evaluation

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COURSE GUIDE

Introduction

BFN 409: Project Evaluation is a semester course work of two credit units. It will be available to all students in the School of Business and Human Resources Management. The course consists of 4 modules involving the subject area of Project Evaluation.

The course guide tells you what the course is all about and the relevant materials that you require to make your study very successful. Other vital information contained in this course guide deals with Assessment which consists of the Tutor- Market Assignments, and written examination.

The Course Contents

The course contents consist of project evaluation from the project cycle to engineering evaluation, demand/market evaluation. It also includes financial and economic analyses of projects.

Course Aims

The aims of this course are to expose you to the knowledge of how to evaluate projects either as a project initiator or an evaluator. It aims to sharpen your skills in the evaluation of either new projects or existing projects with a view to deciding whether they meet certain predetermined investment criteria.

Course Objectives

At the end of this course you should be able to:

- discuss the totality of project evaluation
- prepare simple project plans/business plans
- evaluate projects submitted to you for consideration
- analyze the profit ratio and social profit of a project

The Course Materials

The main components of the course are:

1. The Course Guide
2. Study Units
3. References/Further Readings
4. Assignments

Study Units

There are 20 units in this course and they should be studied carefully

Module 1: Project Meaning

- Unit 1 Project meaning, relation with programme
- Unit 2 The Project Cycle
- Unit 3 Project Evaluations – An Introductory Format
- Unit 4 Factors Affecting Location of Projects
- Unit 5 Capacity and Production Planning

Module 2: Project Planning and Analysis

- Unit 1 Manpower Planning and Evaluation
- Unit 2 Demand Analysis
- Unit 3 Supply Analysis
- Unit 4 Competition and Marketing Plans
- Unit 5 Project Cost Analysis

Module 3: Project Income and Evaluation

- Unit 1 Projected Income Statement
- Unit 2 Projected Cash Flow Statements
- Unit 3 Projected Balance Sheets
- Unit 4 Project Evaluation Criteria
- Unit 5 Introduction to Economic Analyses

Module 4 Risk and Cost Analysis

- Unit 1 The Evaluation Methods
- Unit 2 Concept of Risk in an Organisation
- Unit 3 Risk and Uncertainty
- Unit 4 Assessment of Social Profitability
- Unit 5 Cost Benefit Analysis

Module 1 provides you with the necessary background knowledge you require for your study. The remaining module 2 to 4 focus attention on the subject matter of project evaluation. Each study unit will take at least two hours and it includes:

The introduction, objectives, main content, exercise, conclusion, summary, references and the Tutor-Marked Assignments (TMAs).

You are required to study the materials, reflect on them and do the exercises. Some of the exercises require that you visit some organisations and find out how they carry our project evaluation practice. You should also read the textbooks and other recommended materials.

Assignments

In each unit, you will find exercises which you are required to do. The exercises will enable you to have a better understanding of what you have studied.

Assessment:

As a student of the Open and Distance Learning (ODL) system, you are expected to access your learning ability by the extent of your understanding of the units and the entire course. This assessment prepares you for the final examination. The final examinations will come at the end of the course. You are expected to write this examination whose score together with what you made in the TMAs will form the course grade.

Tutor-Marked Assignment

In doing the Tutor-Marked Assignments, you are expected to apply what you have learnt in the contents of the study unit. The TMAs are expected to be computer base for grading. They constitute 30% of the total score.

Final Examination and Grading

At the end of the course, you will write the final examination. It will attract the remaining 70%. This makes the final score to be 100%.

Summary

The course BFN 409 – Project Evaluation will expose you to the knowledge and understanding of how to evaluate projects. When you complete the course, you would have been armed with the necessary knowledge required to evaluate projects.

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MODULE 1 PROJECT MEANING

- Unit 1 The Meaning of Project
- Unit 2 The Project Cycle
- Unit 3 Project Evaluation – An Introductory Format
- Unit 4 Factors Affecting the Location of Projects
- Unit 5 Capacity and Production Planning
- Unit 6 The Concept Of Engineering Evaluation

MAIN COURSE

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- 2.0 Objectives
- 3.0 Main Content
 - 3.1 .1 Definition of Project
 - 3.1.2 The characteristics of a Project
 - 3.1.3 The Differences between Project and a Programme
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

Ordinarily, a project is an undertaking that requires commitment of human and material resources. Projects require commitment and deployment of resources. As a business manager of the future, you will encounter various projects in your work place or environment. Most of the projects are likely to be private sector driven. They may be manufacturing projects or they could be petrochemical or civil engineering projects. Your key task, as a project evaluator, is to carefully consider each and every project brought to your attention and see how useful or valuable they are.

Our first task and which we will accomplish in this unit is to examine the concept of a project cycle. This concept is very important as it gives us an overview of projects. The knowledge so gained, will lead us throughout the duration of this course.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of project
- describe the various underlying characteristics of a project.

3.0 MAIN CONTENT

3.1.1 Definition of Project

Project has been defined in various ways. Some authorities see projects as mere activities while others see them as programmes of action.

Longman Dictionary of Contemporary English defines a project as “an important and carefully planned piece of work that is intended to build or produce something new, or to deal with a problem”. From this simple definition, we can see that a project, apart from being Important, should be carefully planned so as to produce something. Some of the things that a project seeks to produce may be tangible or intangible. A motorcycle is a tangible product but conducting a census is not a tangible product.

Also, A project is a temporary endeavor undertaken to create a unique product, service, or result. Like most organizational effort, the major goal of a project is to satisfy a customer’s need. Beyond this fundamental similarity, the characteristics of a project help differentiate it from other endeavors of the organization.

3.1.2 Characteristics of a Project

The major characteristic of a project are as follows;

1. An established objective.
2. A defined life span with a beginning and an end.
3. Usually, the involvement of several departments and professionals.
4. Typically, doing something that has never been done before.
5. Specific time, cost, and performance requirements.

First, projects have a define objective – The following are examples of define objectives of projects

- Construction of a 50-bed hospital at Ikeja by the Lagos State Government. Or constructing a 12-story apartment complex by January 1 or releasing version 2.0 of a specific software package as quickly as possibly.
 - Dualisation of the Benin-Lagos highway by the Federal Ministry of Works.
 - Sinking of 10 water bore-holes at Ikorodu town by the local government council.
- From whatever angle we see these projects, some of their features are that they will require the commitment and deployment of scarce resources.

3.1.3 Differences between Project and Programme

What a project is not; project should not be confused with everyday work. A project is not routine, repetitive work! Ordinary daily work typically requires doing the same or similar work over and over, while a project is done only once; a new product or service exists when the project is completed.

Programme versus project; in practice the term project and programme cause confusion. They are often used synonymously. A programme is a group of related projects designed to accomplish a common goal over an extended period of time. Each project within a programme has a project manager. The major differences lie in scale and time span. Programme management is the process of managing a group of ongoing, inter-dependent, related projects in a coordinated way to achieve strategic objectives. For example, a pharmaceutical organization could have a programme for curing cancer, different project are outlined to achieve the set programme.

SELF ASSESSMENT EXERCISE

Discuss Differences between Project and Programme .

4.0 Conclusion

This unit has treated the meaning of project, the characteristics, differences and its relation with programme. This is an introductory aspect to the study of project evaluation. Now that we have the basic foundation, we shall further our discussion with Project cycle as an introductory framework on project evaluation.

5.0 Summary

In this unit we have discussed the meaning of project. We have seen the characteristics of project, its relation to programme and their differences.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain what you understand by the Characteristics of a Project.
2. List and discuss the various objectives of a project.

UNIT 2 THE PROJECT CYCLE

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- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Project Cycle – Meaning and Stages
 - 3.1.1 The Project Idea Stage
 - 3.1.2 The Project Identification Stage
 - 3.1.3 The Project Evaluation Stage
 - 3.1.4 The Project Selection Stage
 - 3.1.5 The Project Execution Stage
 - 4.0 Conclusion
 - 5.0 Summary
 - 6.0 Tutor-Marked Assignment
 - 7.0 References/Further Readings

1.0 INTRODUCTION

Ordinarily, a project is an undertaking that requires concentrated effort. Projects require commitment and deployment of resources. As a business manager of the future, you will encounter various projects in your work place or environment. Most of the projects are likely to be private sector driven. They may be manufacturing projects or they could be petrochemical or civil engineering projects. Your key task, as a project evaluator, is to carefully consider each and every project brought to your attention and see how useful or valuable they are.

Our first task and which we will accomplish in this unit is to examine the concept of a project cycle. This concept is very important as it gives us an overview of projects. The knowledge so gained, will lead us throughout the duration of this course.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain a project cycle
- describe the sequences in a project cycle.

3.0 MAIN CONTENT

3.1 The Project Cycle – Meaning and Stages

A project cycle tries to describe the various stages that are involved, from the conception of a project idea to when the project is executed or actually takes off. Understanding a project cycle is very important as it enables us to get the total picture of a project. We will now examine the various stages of a project cycle.

Basically, projects consist of the projection of ideas and activities into new endeavours. As earlier discussed, projects may be public sector projects in agriculture, defense or transportation. A major railway link from Ibadan to Onitsha may constitute a major public sector project. A new

brewery springing up at Enugu is a typical example of a private sector initiative. But whatever type of project that we are considering, we need to first understand what is usually known as the project cycle.

So before we go into the real subject of our discussion –Project Evaluation, we need to build a strong background. This background is in the form of proper understanding of how a project is conceived. It explains who conceives a project. It also explains the flow of activities up to the execution of the project.

The Project Cycle

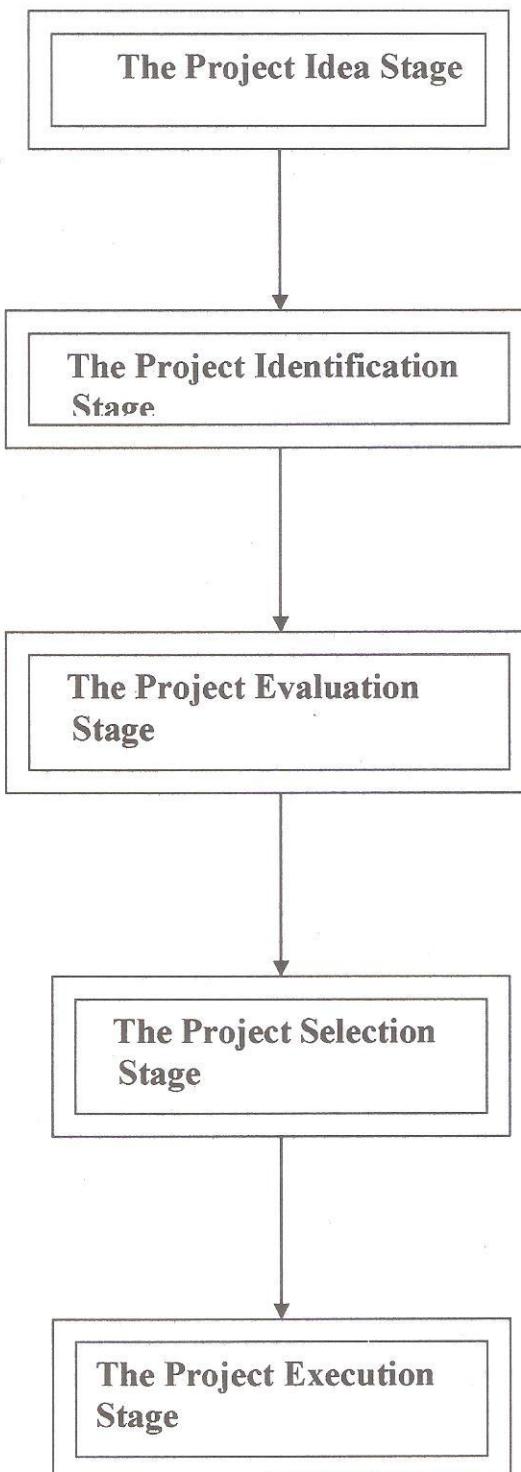


Figure 1 The project cycle

SELF ASSESSMENT EXERCISE 1

List the stages of a project cycle.

Customer

Marketing

Design

Production

Planning

Purchasing

Production

Figure 2 A manufacturing project cycle

3.1.1 The Project Idea Stage

The project idea stage is the first stage of a project cycle. The idea about a project arises from a variety of sources within the internal environment or market place.

New project ideas could originate from within an organisation or from outside the organisation. If the idea originates from within, it could be from a sales person who has encountered some success or problem with customers while performing his or her functions.

You will also realise that a new project idea could emanate from outside an organisation. Coming from outside an organisation, it could be requests from existing customers asking for bigger or better products.

New project ideas may fall into any of the following categories.

- Proposal to add new products to existing lines: A company with existing product lines may decide to add new products to its existing lines.
- Proposal to expand capacity in existing lines: A company may have a proposal to expand capacity to enable it take advantage of enlarged market opportunities.

We need to stress that new project ideas may originate from any level in an organisation. A factory cleaner within an organisation may come up with a new product idea. Also an executive director in an organization may also generate a new project idea.

3.1.2 The Project Identification Stage

After the project idea stage, the next stage is the project identification stage. The project identification stage consolidates the idea stage. Project ideas are not really useful unless they are clearly identified and put down in a systematic manner for further processing.

The idea to introduce a new product into the market may come from a company salesman who is very familiar with the market. At the boardroom room level, the entire organisation has to see the project idea properly and clearly identify it as a possible area of business investment. The totality of the new idea would be considered.

3.1.3 The Project Evaluation Stage

When a project has been identified, the next step is to evaluate the project. Project evaluation involves the estimation of the benefits and costs of a project. Benefits and costs should be measured in terms of cash flows. We have to emphasise at this point that the estimation of the cash flow of a project is a very difficult task. It is difficult in the sense that the cash flow to be estimated is future cash flow. For example in the year 2007, we will try to estimate the cash flow for the year 2008.

In a corporate setup, the evaluation of projects should be carried out by a team of experts drawn from the various departments like production, marketing, accounts and administration. The team of experts should be objective in their evaluation of projects. Alternatively, the evaluation of a project may be contracted to a third party like consultants. Contracting evaluation of projects tends to eliminate bias.

3.1.4 The Project Selection Stage

After the project evaluation stage, the next stage is the project selection stage. Faced with an array of projects with different values and worth, there is need to select which projects to embark upon. There is no standard procedure for selecting projects as this will differ from benefit seen. The important thing to note is that the project selection function is a top management responsibility which in most cases goes to Board of Directors of an organisation. In selecting projects, management usually considers the financial outlays involved and matches them with the financial capabilities of the firm. For example, a firm that has only N10,000,000 (ten million naira only) be considering a new investment that involves a capital outlay of N40,000,000 (forty million naira only) except if it can source money externally e.g., from banks.

3.1.5 The Project Execution Stage

The project execution stage is the final stage in the project cycle. After a project has been selected, it moves on to the execution stage. In most organisations, the responsibility for execution of projects is vested on a project management team raised by top management. The function of the team is to ensure that the budget for the project is spent entirely on the project and that the project is completed on schedule.

In an ideal organisation, the project management team usually prepares a monthly budget consideration report on projects for top management consideration. This is important for project monitoring and control.

SELF ASSESSMENT EXERCISE 2

Discuss three sources of new project ideas.

4.0 CONCLUSION

This unit has treated the concept of the project cycle which is a stepping stone into our study of project evaluation. Now that we have built the necessary background, we shall be discussing Project Analysis – an introductory frame work in the next unit.

5.0 SUMMARY

In this unit we have discussed the concept of the project cycle. We have seen that it starts from the project idea stage, goes to the identification stage, to the evaluation stage. From the evaluation stage it moves to the selection stage and finally to the project execution stage.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain what you understand by the term “project cycle”.
2. List and discuss the various stages involved in a project cycle.

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe, (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 3 PROJECT EVALUATION – AN INTRODUCTORY FORMAT

CONTENTS

- 1.0 Introduction
- 2.0 Objective
- 3.0 Main Content
 - 3.1 Project Evaluation – An Introductory Format
 - 3.1.1 The Technical and Engineering Segment
 - 3.1.2 The Management Segment
 - 3.1.3 The Demand and Market Segment
 - 3.1.4 The Financial Segment
 - 3.1.5 The Economic Segment
 - 4.0 Conclusion
 - 5.0 Summary
 - 6.0 Tutor-Marked Assignment
 - 7.0 References/Further Readings

1.0 INTRODUCTION

In the first unit, we discussed the concept of the project cycle which is very crucial to our understanding of project evaluation. In this unit, we will discuss project evaluation in a proper context. In doing this, we shall build an introductory format which will assist us in our discussion.

Evaluation of a project involves a careful consideration of the totality of the project with a view to seeing how useful or valuable it is. Evaluation enables us to attach proper financial value to a project and also allows us the liberty of comparing it with other projects.

You will note that an analysis is not done in a vacuum. It is usually documented. A problem usually encountered in project evaluation is how to arrange the work to make it readable or understandable.

A very simple format which we will adopt in the evaluation of projects is one that recognizes the various functional aspects or units of an organization.

2.0 OBJECTIVE

At the end of this unit, you should be able to:

- explain the format for project evaluation.

3.0 MAIN CONTENT

3.1 Project Evaluation – An Introductory Format

The introductory format for the evaluation of projects is the arrangement of our work into carefully defined segments. We will now discuss the various segments of project evaluation.

3.1.1 The Technical and Engineering Segment

The technical and engineering segment of project evaluation tries to evaluate the total technical and engineering soundness of a project. It also tries to relate the project to the environment in which it is located.

We will now proceed to draw up a checklist for the technical engineering segment of project evaluation.

Table 1: A Checklist for the Technical and Engineering Segment

Item	Have you covered this in your evaluation?
Land for the project	
Civil works and foundations	
Steel structures	
Factory building	
Offices	
Wind force and direction	
Availability of electric power	
Availability of generator	
Potable water	
Water bore hole with fittings	
Sewage	
Existing roads	
Access difficulties	
List of machinery / equipment	
Availability of raw materials	
Availability of professionals (labour)	
Availability of skilled labour	
Availability of unskilled labour	

3.1.2 The Management Segment

After evaluating the technical and engineering segments of projects, the next segment we need to discuss is the management segment.

The management segment focuses attention on the management aspects of a project. Projects only become successful if they are well managed. We do not need to over-stress the importance

of management. Again, we need to evaluate the legal form of the organization that is evaluated and see if it can carry the project in question.

Table 2: A Checklist for the Management Segment

Item	Have you covered this in your evaluation?
The legal form of the business Organisational structure Who will manage the project Qualifications of key staff Number of employees Salaries	

3.1.3 The Demand and Market Segment

The next segment we shall consider is the demand and market segment. This segment focuses attention on the demand for goods and services and relates it to the market. An evaluation of the demand for goods and services is very important because demand translates to revenues. Also, we need to evaluate supply situations in the market. These two topics will be treated in detail later. We will now examine a checklist for the demand and market segment.

Table 3: A Checklist for the Demand and Market Segment

Item	Have you covered this in your evaluation?
What is the population of the market? What is the nature of demand for the product? What are the factors affecting demand? What is the size of the market? What is the supply situation? What is the price of the demand? Market share Advertisement strategy Promotional strategy	

SELF ASSESSMENT EXERCISE

List and explain five items that you hope to find in the checklist of the management segment of a project evaluation.

3.1.4 The Financial Segment

The financial segment of project evaluation focuses attention on the financial aspects of projects. In discussing financial issues, we are considering all financial aspects of a project such as start-up costs, financial plans, renames and costs and income statements.

3.1.5 The Economic Segment

The last segment we will consider is the economic segment. The economic segment considers projects from the macroeconomic point of view. Economic analysis tries to measure the benefits and costs of projects in terms of their value to society as a whole.

Table 5: A Checklist for the Economic Segment

Item	Have you covered this in your evaluation?
Employment generating capacity	
Contribution to economic growth	
Contribution to government revenue	
Forward linkages of the project	
Backward linkages	
Externalities	

4.0 CONCLUSION

What we have achieved in this unit is to develop a format for conducting the evaluation of projects.

5.0 SUMMARY

We have discussed the format of project evaluation. We did identify the following as segments of project evaluation.

- The technical and engineering segment
- The management segment
- The demand and market segment
- The financial segment
- The economic segment

6.0 TUTOR-MARKED ASSIGNMENT

Discuss the key segments of project evaluation

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 4 FACTORS AFFECTING THE LOCATION OF PROJECTS

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- 1.0 Introduction
- 2.0 Objective
- 3.0 Main Content
 - 3.1 Factors Affecting the Location of Projects
 - 3.1.1 Nearness to Markets
 - 3.1.2 Nearness to Sources of Raw Materials
 - 3.1.3 Nearness to Power Supply
 - 3.1.4 Nearness to Water Supply
 - 3.1.5 Availability of Good Road Networks
 - 3.1.6 Availability of a Good Rail System
 - 3.1.7 Nearness to Airports
 - 3.1.8 Availability of Land
 - 3.1.9 Political Considerations
 - 3.1.10 Intervention Projects
 - 4.0 Conclusion
 - 5.0 Summary
 - 6.0 Tutor-Marked Assignment
 - 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 2 we discussed the format for the evaluation of projects. In this unit, we shall discuss factors affecting the location of projects. This is important because it enables us as analysts to have a proper knowledge of the key issues relating to project locations. Understanding this unit will give you the advantage of knowing in advance what should be and what should not be when issues of project location are raised. For example if a project is located in an area without any justification, the project analyst should be aware of this based on his or her previous knowledge of project location issues.

2.0 OBJECTIVE

At the end of this unit, you should be able to:

- explain the factors affecting the location of projects.

3.0 MAIN CONTENT

3.1 Factors Affecting the Location of Projects

Whether in the private sector or the public sector, projects are located according to set guidelines. In the private sector, project location is based purely on economic guidelines, usually put in place by the various organisations. These guidelines regulate the ways and means by which projects are located. In the public sector, projects may be located according to a different set of guidelines and they may not be driven by Profit motive. It is the discussion of these factors affecting the location of projects that will now take our time.

3.1.1 Nearness to Markets

A major factor affecting the location of projects is their nearness to markets. Most businesses are established primarily for profit. A business organisation will make profit if the goods or products produced are purchased by third parties. It is the difference between revenues and costs that constitute profit. You will easily and quickly realise that most populations that constitute markets are located mainly in the urban areas of Nigeria. So we shall hold firmly to the fact that the nearness to markets is a major factor influencing the location of most projects in Nigeria. Most of the entire population of Nigeria is located in such areas like Lagos, Onitsha, Port Harcourt, Kano, Ibadan, Abuja, etc. Because of this, most businesses and government establishments are located near the critical markets that they wish to serve. That is to say those businesses follow their markets. Concentrations of people or critical markets are very important to corporate officials who design marketing plans.

If you take a good look at your environment, you will realise that a lot of companies are located within Lagos. It is not by accident. Rather it is by design. Businesses are attracted to areas of core concentration of people who constitute vital markets.

3.1.2 Nearness to Sources of Raw Materials

Nearness to sources of raw materials is another strong factor affecting the location of projects, especially manufacturing concerns. Service based projects can locate without reference to any raw material source. But manufacturing concerns cannot afford to gloss over the issue of raw materials. For a manufacturing concern, the raw material source is very important because in most cases, raw materials may constitute over 80% of a product. If a company decides to establish its factory very far away from its raw material source, it is going to end up spending a lot of money to transport raw materials from the source to its factory. This will mean added costs and in the long run, the company may not be able to compete effectively in its chosen market.

If you sit back and think deeply, you will see patterns of industrial locations that tend to suggest that most industrial projects are located close to the sources of raw materials. The Nigerian Coal Corporation Enugu is located in Enugu close to the source of coal.

Most cocoa processing firms are located in the western parts of Nigeria because cocoa is found in abundant quantities there. In the eastern parts of the country, oil mills and vegetable oil plants litter the economic landscape simply because the oil palm grows wildly there and it is also the major raw material for palm oil manufacture and vegetable oil.

If you go up north, you will also realise that the tea producing company is located at the Mambilla Plateau because the plateau is very rich in tea cultivation.

3.1.3 Nearness to Power Supply

Power supply is a very critical input in business, whether service based or manufacturing based. In the case of service-based concerns like banks, electricity will be needed to power computers, servers and other equipment needed to provide service to customers. In a manufacturing concern, electricity is everything. Without electricity, a manufacturing concern is not likely to operate. Electricity is needed to mix chemicals, to drive machinery and equipment and to start electric motors etc.

So in the choice of where to locate, every concerned establishment or business should properly address the issue of power supply. Interruptions in power supply create production problems for industries; this also translates to inability to meet production schedules, and inability to meet production schedules leads to frequent customer complaints for failed deliveries. Frequent failures to deliver goods on schedule may lead to loss of customers.

In our peculiar Nigerian situation, irregular power supply has taken its toll on the manufacturing sector and even service-based activities. The result of this poor public power supply has led most organisations to operate their own plants but with the attendant high operating costs of both fuel and servicing of generating plants.

3.1.4 Nearness to Water Supply

Water is very important in business especially in manufacturing industries. Many manufacturing companies use a lot of water for manufacturing activities. Soft drink manufacturers for example, use a lot of water in the production process. In the agricultural sector, garri processing factories use a lot of water and they are attracted to areas where there is plentiful supply of water.

3.15 Availability of Good Road Networks

Availability of good road networks is another major factor influencing the location of projects in the economic landscape. Road networks are very important. They are important for the movement of essential raw materials from raw material sources to factories and also for the movement of finished goods to the markets where they are needed. Most investors in the economy are usually attracted to areas with good road networks. Good road networks reduce the cost of transportation.

3.1.6 Availability of a Good Rail System

Another important factor influencing the location of projects is the availability of a good rail system. A good railway system ensures cheap transportation and evacuation of raw materials from their sources to factory locations and also the movement of finished goods to markets. You may observe that the development of trading locations in Nigeria seemed to have followed the railway system. The North – Eraislwtearyn system runs through towns today which have become trading posts. Aba, Umuahia, etc., all enjoy good trading activities because they are located along railway line routes.

3.1.7 Nearness to Airports

Another identified factor affecting location of projects is nearness to airports. A lot of businesses tend to be located close to Airports. encourage quick movement of people to and from various locations. If you take a good look at the country today, the towns that are served with air links tend to be enjoying faster economic growth and development. Port Harcourt, Calabar, Enugu, etc., enjoy good air links which facilitate the movement of people.

3.1.8 Availability of Land

In economic theory, there are four factors of production namely: land, labour, capital and the entrepreneur. Each of these factors is very important. However, Land appears to assume very important dimensions especially where large scale agricultural projects are involved. Very large

agricultural projects like oil palm plantations require vast areas of land before they can become profitable. A cassava farm which will feed a garri processing plant needs to be very vast in terms of land space. You may realise that invariably projects are attracted to areas where there is adequate land.

3.1.9 Political Considerations

The location of most business projects is driven mainly by economic motives. Private sector projects are mainly profit-driven and their location is based only on economic merits. Also the public sector, since the era of economic reforms, has bought the idea of economic reforms and is now locating projects based on economic merit and viability.

However, not all projects are located based on sound economic judgment. Political considerations occasionally play very important roles in deciding where a project will be located. For example an oil refinery may be located very far away from crude oil sources. The cost of transporting crude oil to the refinery may result in the refinery operating at a loss.

3.1.10 Intervention Projects

Intervention projects are those projects which are conceived and located within specific areas to correct inequalities in distribution of resources. In the emerging political dispensation, the issue of uneven development has been brought to the front line of discussions. Complicating the discussions is the issue of resource control and the attendant political and social implications.

The Niger Delta region of Nigeria produces a major percentage of the oil revenues of Nigeria. Recent thinking is that the region has Not received sufficient attention as a major oil producing region. Currently, the federal government is focusing attention on the region and a lot of developmental projects are now springing up in the area.

SELF ASSESSMENT EXERCISE

List and discuss four factors that have influenced the location Of industrial projects in your present environment.

4.0 CONCLUSION

In this unit, we have discussed those factors which affect the location of projects in Nigeria. The projects may be private or public sector projects. The factors may be economic or in some cases be political.

5.0 SUMMARY

In this unit, we have discussed those factors that affect the location of projects in Nigeria. They range from market driven forces to political forces. We have also discussed intervention projects which are a new feature in our economy.

6.0 TUTOR-MARKED ASSIGNMENT

- a. Mention four factors that are likely to influence the location of projects in Nigeria.
- b. Discuss the four factors that you have mentioned.

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 5 CAPACITY AND PRODUCTION PLANNING

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- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Capacity and Production Planning
 - 3.2 Concepts of Capacity
 - 3.3 The Nature of the Production Plan
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 70. References/Further Readings

1.0 INTRODUCTION

In Unit 3, we discussed factors affecting location of projects. There we examined such factors as nearness to critical markets, nearness to sources of power and other factors. In this unit, we shall discuss capacity and production planning.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain capacity and production planning
- describe the practical applications in industry.

3.0 MAIN CONTENT

3.1 Capacity and Production Planning

Our interest in capacity and production planning is for two main reasons. First, it could be that we are project initiators trying to draw up a business plan for a start-up project in which case we want to know well in advance what the capacities of our plants will be and the production plan. Understanding capacity of a project assists us to design and construct such items like cash flow statements, etc. On the other hand, we could be analysts on the other side of the fence. In this case, we must have been presented with a business plan or a project plan and have been asked to evaluate the project. So no matter on which side we are, we must understand capacity and production plans. No firm undertakes to produce goods without production plans. Production plans are linked to the firm's demand for goods and services. We shall now discuss "capacity" in relation to production plans. The production plans are in relation to the manufacture of tangible goods.

3.2 Concepts of Capacity

Ordinarily, capacity means "ability to do something". But in project terms, the capacity of a plant is a reference to the output of the plant or machine. When discussing plant capacity, we should realise that there are three types of capacity namely:

- Installed capacity
- Attainable capacity
- Actual capacity

Installed Capacity

The installed capacity of a plant or machine is the maximum output in terms of tangible goods which the plant or machine is capable of producing at a given time. The capacity is usually given by the manufacturers of the equipment.

We can therefore define installed capacity in terms of the following:

- Number of goods produced per minute
- Number of goods produced per hour
- Number of goods produced per day
- Number of goods produced per year

In practice, we usually define installed capacity in terms of capacity. The best way to visualise installed capacity is to consider a Mercedes Benz car that has a speedometer limit of 200km per hour. In effect, 200km/hour is the maximum speed the car can attain according to the manufacturers. This 200km per hour is the installed capacity of the car.

SELF ASSESSMENT EXERCISE 1

A plant can produce 2000 sachets of water per hour, all things being equal. What is the installed capacity of the plant per annum?

Attainable Capacity

We have just discussed the installed capacity of a plant or machine and described it as the maximum output that a plant or machine can achieve. However in real life, no machine can work for 60 minutes in an hour, 24 hours a day and 365 days in a year without breaking down. There must be production loss arising from servicing of the machines, changes in shift, repairs of machines, etc. Because of these reasons, we now have a more realistic capacity which in the literature is known as the attainable capacity of a plant/machinery.

The attainable capacity captures the effect of plant servicing and or repairs on production output. Let us go back to our Mercedes Benz car. We said it has an installed capacity of 200km per hour. Practically, we know that no person will like to drive a car at a speed of 200km per hour. Everyone should be thinking of safety. We could agree amongst ourselves that 100km per hour constitutes a safe speed. In that line of thinking, we can now define 100km per hour as the attainable capacity of the car. This is the speed at which a sane person can drive the car.

Actual Capacity

Actual capacity refers to the real output that a plant can achieve given the market situation. We should realise that the actual capacity of a plant depends on a lot of factors. First is the issue of the market for the plant's output of goods. A plant should produce only what it can sell at a given time. Again financial resources can limit the output of a plant because firms require finance to purchase raw materials and other inputs for production.

3.3 The Nature of the Production Plan

The production plan shows exactly the proposed output of a plant or project under consideration. In constructing the production plan, information on the plant capacity, shift arrangements, raw material sourcing, etc., are all used. Below is the production plan of a vegetable oil refining plant that uses palm kernel oil as base raw material.

You are requested to properly study the production plan and make sure you understand it.

An Example of a Production Plan

The Plant

The plant under consideration is a modern vegetable oil refining plant using palm kernel oil (PKO) as base raw material. The installed capacity of the plant is 50 metric tons per day of 24 hours.

Working on a shift of 10 hours, an output of 20.83 tons is possible while two (2) shifts of 10 hours each will yield daily output of 41.66 tons of refined vegetable oil. Because of the need to accommodate plant repairs, servicing, public holidays, etc., the plant will be operated for 300 working days in a year. Proposed capacity is based on 2 shifts of 10 hours each per day.

To ensure that there is uninterrupted supply of palm kernel oil to feed the plant, the project promoter already has in operation 26 Muar ban Lee Palm Kernel Oil (PKO) expellers with a total Installed capacity of 220 tons/day.

Table 6: Annual Capacity/Production Plan (Metric Tons)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4 - 5</u>
	2007	2008	2009	2010-2011
Installed Capacity	18,250	18,250	18,250	18,250
Attainable Capacity	16,425	16,424	16,425	16,425
Proposed Capacity	12,498	12,498	12,498	12,498

Proposed capacity is based on the following:

Year 1 to 5: 2 shifts of 10 hours each per day and 300 workday/year.

Attainable capacity is 90% of installed capacity. Installed capacity:

Installed capacity is 50 tons per day x 365 days.

This translates to 18,250 tons per annum

Production Activities

STAGE ONE Palm Kernel Crushing

Stage one of production involves the crushing of palm kernel to yield palm kernel oil (PKO). The residues are palm kernel cake (PKC) and palm kernel sludge.

Palm kernel cake is sold to feed mills as a major ingredient for animal feed. Palm kernel sludge is sold to soap manufacturers. Refining Of Oil to Yield Edible Vegetable

Refining Of Oil to Yield Edible Vegetable STAGE TWO

Stage two of production involves the refining of the crude Palm Kernel Oil (PKO) to yield edible vegetable oil. In refining of the oil, fatty acid is collected. The fatty acid is sold to soap manufacturers.

Activity Flow

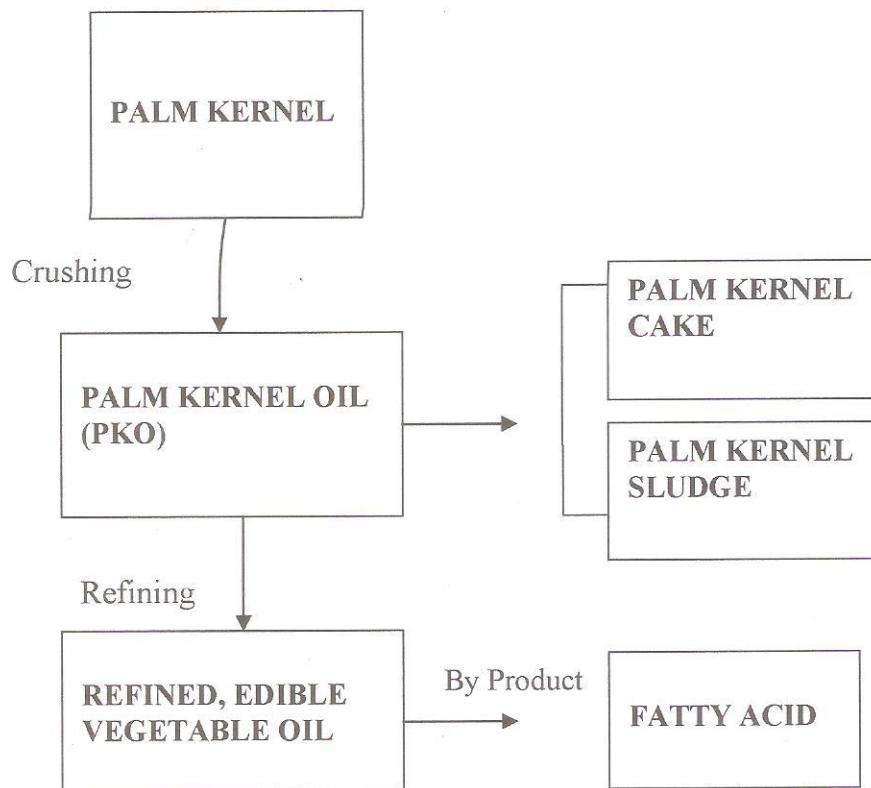


Figure 3: Activity flow in a vegetable oil refining plant

Machine and Equipment Required

The vegetable oil refining plant consists of the following equipment broken down into various sections:

1. Continuous oil pre-treatment section
2. Continuous bleaching section
3. Continuous physical refining and deodorising section
4. Thermal oil heating unit
5. Water cooling and recirculation system

6. Steam generation and distribution system

These machinery and equipment will be sourced from overseas. However, in addition, the following items form part of the equipment required but they will be sourced locally:

1. 2 units crude oil tank 200 tons
- 2 1 unit refined oil tank 300 tons
3. 1 unit fatty acid tank 50 tons
4. 1 unit furnace oil tank.

Vegetable Oil Refining Process Description

Pre Treatment

The crude oil received in the crude oil tanks, if required, is given a hot water treatment and allowed to settle to remove settled impurities along with water. The oil is then heated till drying and transferred to high shear mixer wherein the requisite quantity of phosphoric acid is dosed in to allow conversion of non hydra table phosphotides. The acidulate mixture is then given a retention time for complete reaction of phosphoric acid in the reaction vessel.

Bleaching

The heated oil (acid conditioned, degummed or neutralised) enters the inlet mixing tube of the vacuum bleacher. Bleaching earth is proportioned by a valve dosing system that also desecrates the before it enters the vessel. The earth is introduced under the oil spray in the mixing tube for improved mixing, so that earth does not enter the bleaching vacuum system. The earth absorbs any residual gums soap as well as trace metals, colour bodies and other polar impurities.

The bleacher has multiple agitated compartments and operates under vacuum to ensure complete moisture and air removal. The dried oil and earth mixture is discharged by the bleacher discharge pump to one of the filters where the spent earth is removed. The filtered oil is collected in the bleached oil receiver. The bleached oil pump sends the oil filter via one of the alternating polish filters.

Filter Management

The standard bleaching system is based on the use of two filters of which one is on line while the other is being cleaned and prepared for the next cycle. When a filter has reached maximum capacity, as indicated by high feed pressure, it is taken offline for cleaning and replaced by the other filter.

The cleaning procedure begins by first pressurizing the filters with steam to expel residual oil into the Heel Tank and dry the spent filter cake. The oil recovered from the filter cake is collected in the tank and can usually be recycled to the bleacher. After drying, a bottom discharge valve on the filter is opened and the leaves pneumatically vibrated so that the spent cake is dislodged and discharged via a hopper. The filter is then closed and prepared for the next

batch. Before going online again it can be pre-coated with filter aid and/or bleaching earth in order to seal the filter.

Raw Material Requirements

The key raw material required for the refining of vegetable oil is palm kernel oil (PKO). The rest are additives.

Table 7: Raw Material Requirement

The key raw material required for the refining of vegetable oil is palm kernel oil (PKO). The rest are additives.

Table 7: Raw Material Requirement

Material	Sources	Unit Cost ₦
Palm kernel oil	Open markets in Onitsha, Owerri	N130,000/Ton
Citric acid	Pharmaceutical firms, open markets at Aba, Port-Harcourt, Owerri and Lagos.	N200/kg
Phosphoric acid	Freely purchased in chemical shops at Aba and other locations nationwide.	N300/kg
Bleaching earth	1) Vin George Ventures 7 Association Avenue, Lagos 2) Open markets at Aba, PH, Onitsha etc.	N88,000 per Ton

Annual Input-Output Analysis

The annual input-output analysis seeks to determine the inflow of manufacturing raw materials and their corresponding outflow of products. It assumes 300 working days per annum. It aggregates the daily input-output analysis.

Table 8: Annual Input – Output Analysis

Input	Output
32,889.60 tons of Palm Kernel	(1) 13,155.84 tons of Palm Kernel Oil (PKO) (2) 18,418 tons of Palm Kernel Cake (PKC) (3) 1,315 tons of Palm Kernel Sludge.
13,155.84 tons Palm Kernel Oil (PKO)	(1) 12,498 tons of Vegetable Oil (2) 657.84 tons of fatty acid

Table 9: Summary of the Proposed Production Plan (Tons)

Year Ended 31st Dec

	Year 1 2007	Year 2 2008	Year 3 2009	Year 4-5 2010-2011
1. Refined vegetable oil				
2. Palm kernel cake (PKC)	12,498	12,498	12,498	12,498
3. Palm kernel sludge	18,418	18,418	18,418	18,418
4. Fatty acid	1,315	1,315	1,315	1,315
	657.84	657.84	657.84	657.84

4.0 CONCLUSION

We have discussed capacity and production planning which are very important aspects of a project because they both relate the project to the market. Capacity and production plans enable the firm to plan well in advance what to produce and in what quantity too.

5.0 SUMMARY

We have discussed capacity and production planning and have established the link between them. We also used an example of vegetable oil refining plant to explain the production plan.

6.0 TUTOR-MARKED ASSIGNMENT

1. What do you understand by the installed capacity of a plant?
2. How is it different from the attainable capacity?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999): Project Analysis and Evaluation. Lagos: Impressed Publishers.

MODULE 2: Man Power Planning and Analysis

Unit 1 Manpower Planning and Evaluation

Unit 2 Demand Analysis

Unit 3 Supply Analysis

Unit 4 Competition and Marketing Plans

Unit 5 Project Cost Analysis

UNIT 1 MANPOWER PLANNING AND EVALUATION

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Manpower Planning and Evaluation

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 5, we discussed the concept of an engineering evaluation of a project. Engineering evaluation of a project as we saw seeks to evaluate the engineering soundness of a project. This is very crucial especially when the project will be ranked or compared with another project.

Every enterprise requires labour. It is labour that coordinates the other factors of production like land and capital. In terms of project evaluation, our concern is to look at the project and examine the human resources aspects. In terms of manpower planning and evaluation, we need to examine the following:

- Key employees
- The key responsibilities
- The qualifications
- Hours of work
- Training and development of the staff
- Remuneration of the staff

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain manpower planning and evaluation
- discuss the practical applications in industry.

3.0 MAIN CONTENT

3.1 Manpower Planning and Evaluation

In general terms organising manpower in an organisation is the process of assigning duties amongst personnel and coordinating efforts towards the attainment of the firm's objectives. But before organising, there must be a plan. It is the plan that leads to the shaping of an organisation's structure.

Conceptually, the project initiative in structuring the organisation should be concerned about two critical things.

- Job definitions in the project under consideration
- Departmentalisation which follows job definitions. In doing this, similar jobs are grouped together to form a department. The most common way of organising a project is by function.

For example a manufacturing plant may be divided into three type's namely:

- Production
- Marketing
- Finance

There are two uses of the manpower plan. The first use is by the project initiator. When the project initiator is structuring the project, the manpower plan definitely is a critical component. The project initiator needs to know well in advance who the key employees will be. The key employees will depend on the nature of the business in question. If the business is, for example, soap manufacturing, then a lot of the production staff should be industrial or pure scientists plus other core support staff. Apart from that, each employee should have their various responsibilities. For example, in a soap plant, you will have production staff and also quality control staff. They have difference responsibility. And of course, the qualifications of the various staff including their years of experience should be properly documented and evaluated.

The second use of the manpower plan is that financial institutions like banks, before granting loans or overdraft for a project, usually insist on being convinced of the management skills that will be available or are actually available in the firm that seeks to borrow money. They will look at the people concerned, their qualifications and match them with the jobs allocated to them.

Hours of work and the salary and wages of the entire work force are another critical input. The salary and wages of those working on a project is actually expected to hover around the average for the industry.

In practical terms, the manpower of a project can be grouped into two namely:

- Direct labour
- Indirect labour

When we talk about direct labour in a manufacturing project, e.g., a soap plant, we are talking about staff attached to the actual production of the soap. The production manager, production supervisor and factory attendants are all direct labour.

Indirect labours on the other hand are those workers who do not work directly on the manufactured goods but indirectly. They include accounting and admin staff, marketing staff and others. We have an example of a manpower plan. It contains the following:

- Manpower requirements of the project broken down into direct and indirect labour
- Remuneration of the staff

SELF ASSESSMENT EXERCISE

List and explain four departments that could be found in a big manufacturing firm.

Table 13: Manpower Requirements of the Project**(a) Indirect Labour**

Post	Specifications	Job Functions
General manager	Degree in sciences, engineering or management but with previous experience in a water packaging outfit	To oversee the general management of the factory
Accounts/admin. officer	OND Accounting with at least 2 years post qualification experience	General administration and keeping of the books of account. Reports to the General Manager
Marketing officer	B.Sc or HND Marketing with previous experience in marketing of packaged water	Reports to the general manager and is in charge of marketing of the company products
Sales clerk	Senior Secondary School Certificate or GCE	Reporting to the marketing officer, the sales clerk will be responsible for all clerical duties concerning sales
Accounts clerk	Senior Secondary School Certificate or GCE	Reporting to Accounts/admin officer, the accounts clerk will be responsible for clerical accounting duties including receipt of cash.
Secretary	OND secretarial studies with at least 2 years experience in a busy organisation	Reporting to the general manager, the secretary will be in charge of all secretarial duties
Drivers	FSLC but with good knowledge of the environment	Carriage and general distribution of the company products
Security staff	FSLC	General security duties

Post Specifications Job Functions

General manager Degree in sciences, To oversee the general engineering or management of the factory but with previous experience in a water packaging outfit Accounts/admin. OND Accounting with at General administration and officer least 2 years post keeping of the books of qualification experience account. Reports to the General Manager Marketing officer B.Sc or HND Marketing Reports to the general with previous experience in manager and is in charge of marketing of packaged water marketing of the company Products Sales clerk Senior Secondary School Reporting to the marketing Certificate or GCE officer, the sales clerk will be responsible for all clerical duties concerning sales Accounts clerk Senior Secondary School Reporting to Certificate or GCE Accounts/admin officer, the accounts clerk will be responsible for clerical accounting duties including receipt of cash. Secretary OND secretarial studies with Reporting to the general at least 2 years experience in manager, the secretary will a busy organisation be in charge of all secretarial duties Drivers FSLC but with good Carriage and general knowledge of the distribution of the company environment products Security staff FSLC General security duties

(b) Direct Labour

(b) Direct Labour

Post	Specifications	Job Functions
Production manager	HND water technology with at least 2 years experience post NYSC	To oversee the production function in the water plant
Shift supervisors	OND in science with relevant experience	To supervise production shifts
Technicians	City & Guild/Trade Test	Maintenance of the mechanical and electrical components of the plant
Laboratory technician	OND Laboratory Science	Reporting to the production manager, the laboratory technician will be in charge of quality control
Factory attendants/machine operators	Senior Secondary School Certificate or GCE	General factory duties including operation of the water filing machine, pre-market packaging of the sachet water and loading.

Post Specifications Job Functions

Production manager HND water technology To oversee the with at least 2 years production function in experience post NYSC the water plant Shift supervisors OND in science with To supervise relevant experience production shifts Technicians City & Guild/Trade Maintenance of the Test mechanical and electrical components of the plant Laboratory technician OND Laboratory Reporting to the Science production manager, the laboratory technician will be in charge of quality control Factory Senior Secondary General factory duties attendants/machine School Certificate or including operation of operators GCE the water filing machine, pre-market packaging of the sachet water and loading.

(c) Summary of Manpower Requirements Including Outlays

(c) Summary of Manpower Requirements Including Outlays

	No Required	Annual Outlays (₦)
Indirect Labour		
General manager	1	420,000
Accounts/admin officer	1	240,000
Marketing officer	1	240,000
Sales clerk	3	360,000
Accounts clerk	2	240,000
Secretary	1	180,000
Driver	3	288,000
Security staff	4	336,000
Sub-Total	16	2,304,000
 Direct Labour		
Production manager	1	360,000
Technicians	2	288,000
Shift Supervisors	4	720,000
Laboratory technician	1	180,000
Factory attendants/machine Operators	12	1,296,000

Sub-Total	20	2,844,000
Grand Total	36	5,148,000
Staff Welfare		514,800
Total Salary, Wages/Welfare		5,662,800

No Required Annual Outlays (₦)

Indirect Labour	No.	
General manager	1	420,000
Accounts/admin officer	1	240,000
Marketing officer	1	240,000
Sales clerk	3	360,000
Accounts clerk	2	240,000
Secretary	1	180,000

Driver	3	288,000
Security staff	4	336,000
Sub-Total	16	2,304,000
Direct Labour		
Production manager	1	360,000
Technicians	2	288,000
Shift Supervisors	4	720,000
Laboratory technician	1	180,000
Factory attendants/machine	12	1,296,000
Operators		
Sub-Total	20	2,844,000
Grand Total	36	5,148,000
Staff Welfare		514,800
Total Salary, Wages/Welfare		5,662,800

4.0 CONCLUSION

This unit has treated manpower planning and evaluation which is a critical aspect of evaluation of projects. The unit has focused attention on the manpower aspects of a project

5.0 SUMMARY

In this unit, we have discussed manpower planning and evaluation. We have seen how manpower planning involves the assigning of duties to personnel and have also tried to relate manpower to a firm's objectives.

We also saw that departmentalisation is a critical aspect of a manpower plan. Also we discussed the use of the manpower plan. We saw that the manpower plan can be used by two different groups of people – the project initiator and the evaluator.

6.0 TUTOR-MARKED ASSIGNMENT

Why is a manpower plan important in a start-up project?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 2 DEMAND ANALYSIS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Demand Analysis – Analytical Framework
 - 3.2 Analysis of a Population Data
 - 3.3 Potential Customers
 - 3.4 Evaluating the Size of the Market
 - 3.5 Forecasting Future Demand
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 1, we discussed manpower planning and evaluation. Here we saw the fact that labour is one of the most important aspects of a project whether a start-up or an on-going one. We also used an example to drive home our point.

In this unit, we shall discuss demand analysis. Demand analysis is one first steps towards looking at a market. Demand analysis is the starting point of our discussions concerning the project and the external environment which is the market. A project is established for a purpose –to serve a market.

The demand analysis is the measurement and forecasting of demand for goods and services of a project. It is like a peep into the future, which as you know, is unknown. A project will survive if the products and services produced by the project are acceptable to the market.

Acceptability means that consumers are willing to pay for the goods or services. Demand analysis is a tool used by the project initiator to analyse the total picture of the market that he/she wants to play in. Likewise, providers of loanable funds like banks also conduct demand analysis to ensure that the projects they wish to sponsor financially have the chances to survive in the market. So from whatever angle you look at it, demand analysis is important.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain what a demand analysis is
- discuss how to conduct demand analysis.

3.0 MAIN CONTENT

3.1 The Demand Analysis – Analytical Framework

To arrange our discussion in an orderly manner, we will try to build an analytical framework that we shall use to do demand analysis. The frame work will guide us to take an architectural view

of the subject matter. In taking an architectural view, we shall be looking at the larger picture. The analytical framework we shall adopt will follow the sequence below:

- Get total population data and make projections.
- Study the details of the population.
- Define the good or service for which demand analysis is to be inducted.
- Define demand again to guide your direction.
- Look at factors affecting demand.
- Using both quantitative and qualitative techniques, generate conditional demand.
- Generate projections for demand using quantitative and qualitative methods.

Table 14: Census 2006: Nigerian Population Data

Abia	2,833,999
Adamawa	3,168,101
Akwa Ibom	3,920,208
Anambra	4,182,032
Bauchi	4,676,465
Bayelsa	1,703,358
Benue	4,219,244
Borno	4,151,193
Cross River	2,888,966
Delta	4,098,391
Ebonyi	2,173,501
Edo	3,218,332
Ekiti	2,384,212
Enugu	3,257,298
FCT	1,405,201

Gombe	2,353,879
Imo	3,934,899
Jigawa	4,348,649
Kadunna	6,066,562
Kano	9,383,682
Kastina	5,792,578
Kebbi	3,238,628
Kogi	3,278,487
Kwara	2,371,089
Lagos	9,013,534
Nasarawa	1,863,275
Niger	3,950,249
Ogun	3,728,098
Ondo	3,441,024
Osun	3,423,535
Oyo	5,591,589
Plateau	3,178,712
Rivers	5,185,400
Sokoto	3,696,999
Taraba	2,300,736
Yobe	2,321,591
Zamfara	3,259,846
Total	140,003,542

3.2 Analysis of a Population Data

We have seen that the starting point of our discussion of a proper demand analysis is to study the population. But we should also understand that getting the total population figure is not the end of the job. We should go further and analyse the population. The purpose of the analysis is to understand certain characteristics of the population.

For example, a manufacturer of lipstick has nothing to do with the total population. Rather what is important to the manufacturer is the total female population. There are other aspects of the population that we consider important. Age distribution of a population is one of such aspects. The age distribution of a population is important because it breaks down the population into the various age brackets. Perfect knowledge of the age distribution of a population enables a would-be investor have an idea of his total feasible market well in advance. For example, a manufacturer of baby toys will not be interested in the total population of Nigeria. What will interest the manufacturer is the total number of babies in the population. We have stressed the importance of population data in the understanding of demand analysis. We will go a step further to provide a checklist of further information that is required when we are analysing a population data.

Table 15: Analysis of a Population Data-A Checklist

Item	Have you built this into your demand analysis?
Population of Nigeria by state	
Population by local government area	
Population of Nigeria by sex	
Population distribution by types of household	
Population distribution by age	
Population distribution by literacy level	
Population distribution by level of economic activity	
Population distribution by material status	
Population distribution by type of disability	
Persons arriving Nigeria by nationality	
Persons arriving Nigeria by age group	
Persons departing Nigeria by nationality	
Persons departing Nigeria by age group	

3.3 Potential Customers

A starting point for our discussion is to properly define who the potential customers of the business are or will be. Customer definition is not an easy task as we shall soon see. Sometimes confusion arises as to who is a customer because people also fail to distinguish customers from consumers.

The term consumer refers to the person or one who uses a product (or service) for his/her personal satisfaction or benefit. The consumer is the one who changes the form of a product to alter its identity. For example, a soap manufacturer will buy caustic soda and use it to manufacture soap. He is the consumer of the raw material. On the other hand, a customer may be a consumer or a dealer who buys a product and eventually resells the product. Also even for a service, the business should clearly identify the types of consumers that they wish to serve. For example, there may be many types of hotels because of the types of customers that need to be served namely:

- hotels for students
- hotels for travellers
- hotels for high-class individuals

Table 16: A Potential Customer Checklist

Item	Has this been taken care of in the plan?
What type of business are you planning? What products or services will you offer to the market? Who is your potential customer? How do you define your potential customer? What are your customer characteristics? What are their income levels? Who are the consumers of your product or service? Are the consumers different from the customers? Where are your customers located?	

3.4 Evaluating the Size of the Market

Apart from identifying who the potential customers of the small business are, there is the need for us to go ahead and evaluate the size of the market for our products or services. The evaluation of the size of the market is very important because it gives us a picture of the total market size in terms of naira and kobo.

A standard analysis should state the market size of the product or service in question. The size of the market is usually estimated by using both qualitative and quantitative methods. To enable us approach our studies carefully, let us follow the following steps in our effort to evaluate market size:

- Define demand
- Examine factors affecting demand
- Examine demand for intermediate and capital goods
- Build market demand.

Defining Demand

For us to be able to properly prepare demand analysis, we need to define demand and understand what we mean by demand. For purposes of our study, we shall define demand for a product or service as the total quantity of goods or services that able customers in a defined area are willing

to buy at set prices. In effect therefore, demand refers to a set of quantities that customers are willing to buy at different prices. In the traditional economic setting, the demand curve is downward sloping (with a price and quantity axis). It will also be very important for us at this particular time to define and distinguish between two types of demand – total market demand and project demand. Total market demand refers to the total demand within a set geographical area like Nigeria. For example we can make statement that the total demand for beer in Nigeria is 10 million bottles per annum. The meaning of the statement is that in Nigeria, the total quantity of beer demanded is 10 million bottles at the current ruling prices. But we also need to define another type of demand which we shall call project demand.

Project demand is a subset of the total market demand. If a market for a product or service already exists, the project demand is the projects total market demand. If a market is saturated with goods, new projects may face the difficulty of selling their products or services. By and large, it is important to focus attention on a projects which tend to be fatal occur when analysts confuse market and project demand.

Factors Affecting Demand

We have just defined demand which is very important in our study. But we need to go a step further to examine the factors affecting demand in the market place. It is going to help us build a good demand schedule. In the traditional economic platform, one of the most important factors affecting demand is price. If we assume a well behaved demand curve, then the higher the price of a product, the smaller the quantity that will be bought. Also the lower the price, the greater the quantity that will be purchased. This appears to be a rational behaviour especially when human beings are involved.

Another important factor affecting demand for a product or service is the income of the population. Given a basket of income available to purchasers, it is logical to believe that the higher incomes of people, the more goods and services they are likely to purchase. So we can say with a measure of confidence that a population with a higher income is more likely to purchase more goods and services than a population with a lower income.

Apart from income, population is another major factor affecting demand in any given setting. It is certain that a large population demand more goods and services than a smaller population. A major aspect of any population which we should not forget is the ethnic and religious structure of the population. The ethnic structure of a population affects the type of goods and services that will be demanded. For example, in the Nigerian setting, palm oil tends to sell much more in the Southern States than in the North because most Southerners tend to use palm oil in cooking. But in the Northern States, groundnut oil seems to be more available and by implication the people use more of it for their cooking. Also, religion is another aspect of any population that needs to be looked at while drawing up any demand schedule. Again in the Nigerian setting, pork is not an acceptable diet for Muslims but most Christians eat pork. These are the type of critical inputs you need when you are trying to build a demand schedule. Prices of other goods also tend to affect demand. For example, tea and sugar are said to complementary goods since they go hand

in hand. It is therefore logical to say that the price of tea at any given time will affect the demand for sugar. In the same fashion, bread and butter also appear to be complementary goods.

Demand for Intermediate and Capital Goods

When we largely discussed demand our general thinking appeared to be that the goods discussed ought to be consumer goods. But that is not always true. There are some goods which are generally known as intermediate and also capital goods. It is important that we understand these two types of goods.

We shall go ahead to discuss intermediate goods as goods which are not purchased for immediate consumption but rather are used in the production of consumer goods. For example flour is an intermediate good mostly used in the manufacture of bread. Tyres also appear to be intermediate goods if purchased by a car manufacturers. But a tyre is also a consumer product if purchased by Mr. Solomon for use in his car. On the other hand, capital goods are those goods that are used for the manufacture of both intermediate and consumer goods. A manufacturing plant is a capital good. One thing we need to know about capital goods is that they last for very long periods because of their nature.

Building a Market Demand

We have defined what demand for a product or service is generally.

Also we understand what a population is.

Let X = No. of persons in a population

Y = average number of a given product consumed by each person in that population per annum

Then XY = Total market demand per annum for the product in question

SELF ASSESSMENT EXERCISE

There are 400,000 persons in a city called Ireoluwa. Each person in the city drinks a bottle of water daily. What is the annual demand for water in Ireoluwa.

3.5 Forecasting Future Demand

Some of us will assume that building the demand schedule for a product is all that is required; but that is not true because the analyst should be able to forecast future demand for the product in question or the service as the case may be. Forecasting future demand appears to be a difficult task because there is a lot of uncertainty attached to the forecast of a future event. Ordinarily, the demand for many goods may be either stable, erratic or out rightly unpredictable. Social change, structural adjustments, change of taste and technology all add up to forecasting a difficult task especially of demand.

Usually, there are two basic approaches that are available when trying to forecast demand namely:

- Qualitative techniques
- Quantitative techniques

Qualitative Techniques

Qualitative techniques are mainly desk methods which are based on reports obtained from various sources. One of the sources could expert opinion obtained from a pool of experts in an industry experts usually are seen to be knowledgeable about a product or industry and therefore are in a position to forecast what the future demand for a product is likely to be. Another way of obtaining information for use in forecasting demand is known as the sales force composite method.

With this method, salesmen in a particular industry can provide expert data on demand. But in most cases, the data and the forecast that they provide differ significantly from that provided by a panel of experts. The general belief is that since salesmen operate at the grassroots level, they are more knowledgeable about the demand for products and the accompanying forecast.

Quantitative Techniques

The majority of the data generated are often unreliable, biased argued by a subjective state of mind of the people making the forecasts.

Also, we think they are clumsy data in the hands of the entrepreneur.

Quantitative techniques in forecasting, however, are less subjective and are more or less based on past data. In the main they are mathematical in nature and tend to be more accurate. One of the quantitative techniques used is the time series approach. The time series approach generally has become very popular with analysts who are trying to forecast the demand for a good or service. The general feeling is that time is a crucial explanatory variable that explains the future. According to this thinking, past data can explain relationships between the demand of a commodity and time. For example, we can display the relationship between demand and time in a graphical way.

4.0 CONCLUSION

We have fully discussed the demand analysis. We discussed the analytical framework for preparing a demand analysis. We also discussed the analysis of a population data which we said is very crucial.

We defined demand and discussed the evaluation of market size and then went further to discuss the forecasting of demand.

5.0 SUMMARY

Understanding demand analysis is our first practical step towards understanding the format of a market.

6.0 TUTOR-MARKED ASSIGNMENT

Why do you think that the analysis of a population data is important when building a demand analysis?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 3 SUPPLY ANALYSIS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
- 3.1 The Supply Equation
- 3.2 Analysing Supply Data
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 2, we discussed demand analysis which basically looked at the market from the demand side. In this unit, our task is to look at the market from the supply side. Basically when an investor is contemplating an investment in the manufacture of goods for the market, he/she tries to evaluate the nature of the market for the proposed goods or services. Understanding the nature of the market will involve understanding demand as well as supply.

Supply analysis in project analysis tries to focus attention on the supply side of the market. The potential investor will like to know who the current suppliers of the goods or services are. Because this will guide him/her in understanding what is known as the demand/supply gap.

Supply analysis tries to identify the supply of given goods or services. It tries to identify who the suppliers are and their locations. Generally, in measuring the supply of a good, the following should be taken into consideration:

- The domestic supply of the good or service;
- The foreign supply of the good or service. (the imported quantity);and
- The export of the good or service (export quantity).

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain what a supply analysis is
- discuss it in relation to project evaluation.

3.0 MAIN CONTENT

3.1 The Supply Equation

Consider a firm called Fiyinfunoluwa Nigeria Limited that wishes to set up a liquid soap manufacturing plant in Nigeria. The firm now wants to analyse the supply of liquid soap in Nigeria. As we have said, there are three key items to consider. Those three items are:

- The domestic supply of the liquid soap;
- The foreign supply of the liquid soap;
- The export of the liquid soap in question.

Let A = the domestic supply of a good

B = the foreign supply of a good

C = the export of the good

Then supply X = (A + B) – C.

This is called the supply equation.

You will notice that C is the exported quantity and which will not be available for local consumption.

Table 17: Value of Output of Selected Items

Products	N,000
Food and Drinks	
Flour	4,125,417
Sugar	350,333
Confectionery	1,002738
Biscuits	4,700,211
Beer	3,665,544
Soft drinks	124,668
Wine spirit	84,598
Electrical Equipment	
Refrigerators	244,228
Record Players	n.a
Loud speakers	13,204
Radio cassettes	3,680
Air conditioners	319,361
Television sets	2,528
Electrical cables	48,969
Vehicle Assembly	
Motor cycles	235,633
Passenger cars	1,447,874
Pick up	n.a
Other commercial vehicles	1,078,980

Building Materials	
Paints	863,479
Cements	2,221,060
Tiles	299,135
Roofing sheets	2,705,982
Steel and iron rods	718,785
Wire-nails and wire products	207,520
PVC pipes and fittings	84,149
Petroleum and Chemicals	
Soap detergent	4,618,792
Lubricants	1,673,035
Safety matches	138,841
Batteries	527,551
Textiles	
Cotton textiles	6,679,028
Synthetic fabrics	2,998,946
Knitted fabrics	994,827
Garments	31,477
Paper Conversion	
Exercise Books	260,487
Light and flexible packaging	301,541
corrugated cartons	824,430
Paper bags	384,835
Tissue paper	194,928

Table 18: Exports by Products

Description	(₦ Million)
Live animals and animal products	137.1
Vegetable products	438.8
Food industry products	876.6
Of which tobacco products	0.0
Fats and oil	8.2
Mineral products	4,914,042.1
Chemical and allied products	389.6
Plastic, ethers, esters of cellulose, rubber, etc.	3245.2
Hides, leather and fur	6806.1
Wood, charcoal and wood products	39.6
Paper-making material and articles thereof	621.7
Textiles and textile article	1000.1
Footwear, headgear, umbrellas, feathers, hair	228.8
Stone, plaster, cement asbestos, mica products	42.6
Natural pearls, gemstone and other precious metals	0.0
Base metals and articles of base metal	5645.0
Machinery and appliances (other than electrical)	4508.8
Transport equipment	190,409.0

Instruments and apparatus (photos, clocks, etc)	536.4
Miscellaneous manufactured articles	9.1
Arms and ammunitions	0.0
Works of art, collector pieces and antiques	0.1
Other goods and product	40.9

Table 19: Imports by Product Section

Description	(₦ Million)
Live animals and animal products	108,636.4
Of which live animals	97.7
Vegetable products	103,549.2
Food industry products	84,374.6
Of which tobacco products	14018.3
Fats and oil	4,823.8
Mineral products	88,348.1
Chemical and allied products	133,367.4
Plastic, ethers, esters of cellulose, rubber, etc.	121,732.9
Hides, leather and fur	2,432.4
Wood, charcoal and wood products	4048.3
Paper-making material and articles thereof	44,498.2
Textiles and textile article	27,775.7
Footwear, headgear, umbrellas, feathers, hair	3,258.6
Stone, plaster, cement asbestos, mica products	15,568.2
Natural pearls, gemstone and other precious metals	44.4
Base metals and articles of base metal	136,046.2
Machinery and appliances (other than electrical)	409,123.4
Transport equipment	265,034.9
Instruments and apparatus (photos, clocks, etc)	13,464.9
Miscellaneous manufactured articles	9,357.58
Arms and ammunitions	23.3
Works of arts, collector pieces and antiques	6.6
Specials items.	48.4

3.2 Analysing Supply Data

We have agreed that the investor should evaluate the market in terms of determining the level of supply of the goods or service in the market.

But in practical terms, there is the urgent need to identify every supplier and the suppliers' location. This will assist in the preparation of a marketing plan. Some analysts believe that getting information on the actual supply data is all that is important. That is not true. In practical terms, there is the need to find out the following facts about supply in an industry:

- No. of players or suppliers in an industry;
- Their current installed capacities;

- Their current actual operating capacities;
- Anticipated expansion plans;
- Critical labour costs in the industry;
- Raw materials costs in the industry and the likely direction; and
- Categorising the suppliers into their various categories – big, medium or small players.

SELF ASSESSMENT EXERCISE

Explain the supply equation and its relevance.

4.0 CONCLUSION

The supply analysis attempts to identify the components of the supply of given goods and services as well as the supplies and their locations.

5.0 SUMMARY

The supply analysis seeks to analyse the supply of goods and services. It enables the would-be-investor or analyst to have a clear picture of the supply in the market place. Understanding supply is a must if we are to understand the nature of competition in industry.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss the three components of supply that make up the supply equation.

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 4 COMPETITION AND MARKETING PLANS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Body
- 3.1 Analytical Framework
- 3.2 The Nature of Competition
- 3.3 The Marketing Plan
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

We have discussed market demand when we were looking at market analysis. We also discussed supply. We now want to move ahead and see how both of them interplay in what is known as the market.

In this intellectual journey, we have put ourselves in the shoes of the would-be investor or analyst who wants to understand the nature of competition in the market. Every firm takes market demand as given and no firm can single-handedly change demand which we said depends on a lot of factors. Also, every firm takes supply to the market as given because no firm is able to control the supply to the market from other competitors.

It is because of this that we really need to understand the nature of competition in the market. Every dynamic environment creates opportunities and problems for firms. A company must be able to respond constructively to this market setting, analyse the opportunities and threats, and then formulate marketing plans to remain in the competition.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of competition
- discuss marketing plans and how they are designed.

3.0 MAIN CONTENT

3.1 Analytical Framework

We know where we are coming from and we also know where we are going. Our task is to discuss the competition and also the marketing plan. To guide us so that we do not forget our direction, we shall have our proposal an outline – a type of framework that should guide us when evaluating competition and also the design of marketing plans.

Marketing plans are very crucial from the point of view of the project initiator as well as from the project evaluator.

Table 20: Competition: A Framework for Analysis

Industry Outlook	Demand for the product or service Usefulness and desire Stability of demand Supply capacity of industry Labour costs Raw material costs Taxation Permits Regulation
Company's Position in the Industry	Market position of the firm in the industry Products offered Standing of the products The location of the firm Comparative location Relative efficiency of the firm's equipment cost advantages Relative financial strength Ability of company management

3.2 The Nature of Competition

In every industry, competition exists. It is not a matter of sheer bad luck or coincidence. Competition occurs because every firm in an industry wants to sell its products and also get market share to the detriment of other players.

In the market, the state of competition depends on five basic forces as shown in Figure 5. Therefore, any discussion on competition must take into consideration these five basic forces since they cannot be glossed over. The first force exists within the industry where we see firms all jockeying for position. Here, all firms unleash their strategies and fight each other. In the end, some firms emerge as clear leaders, some emerge as followers, while others might close shop.

The second force is the threat of new entrants. New entrants into an industry bring in new capacity. But we should note that the threat of entry depends on the barriers present and also the reaction of existing players. We should also not forget the forces arising from suppliers.

Strong suppliers can exert strong bargaining power on market participants to the extent of raising prices and influencing the price of goods generally. Powerful buyer groups, when they exist in an industry, tend to influence prices since they more or less dictate the price at which they will buy. Finally substitute goods or the threat of substitute goods also influence competition in an industry. Substitute goods tend to limit the potentials of an industry. For example sugar tends to limit the honey industry's potentials for growth and expansion.

SELF ASSESSMENT EXERCISE

In evaluating the outlook for an industry, list and discuss four items that you think are important.

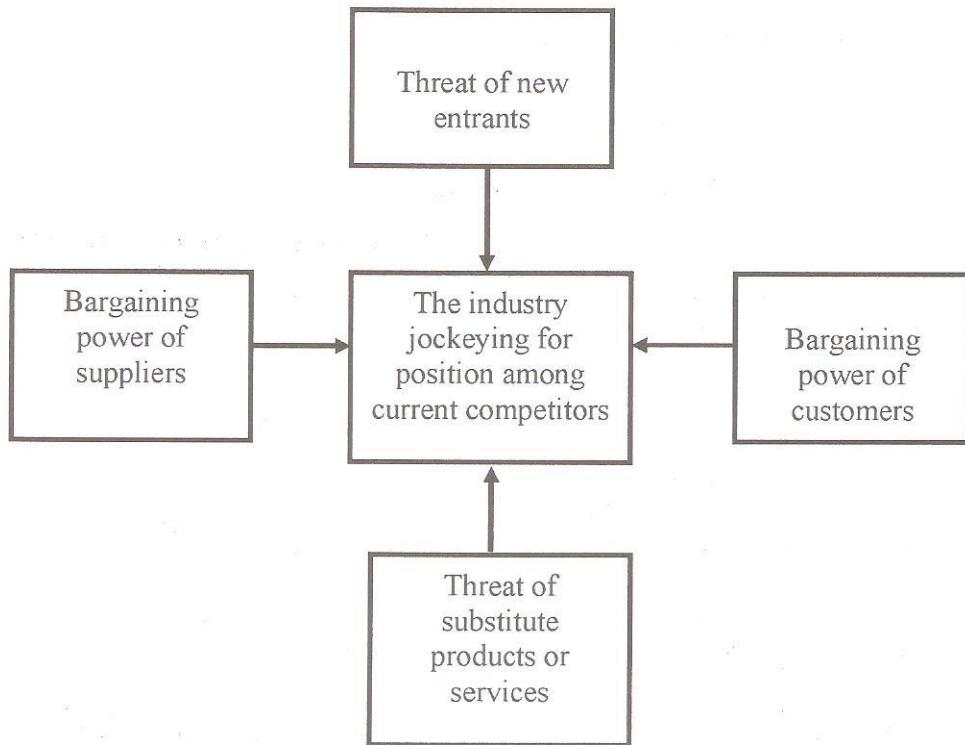


Figure 5: Forces governing competition in an industry

3.3 The Marketing Plan

The marketing plan addresses issues concerning the marketing of the products. It tries to relate the firm to its external consumers and The market.

The marketing plan should answer the following questions:

- What is the product or service?
- What are the uses of the product or service?
- What is the offered price?
- Where will the product be found?
- How will the product or service be advertised?

Table 21: The Marketing Pan Checklist

	Have you covered this in the plan?
How big is the market? Who are your competitors? How are they faring? What is the structure of the competition? What are your competitors' prices? What are your prices? What are the trends in the market? What market share are you thinking of?	

Table 22: The Marketing Plan Checklist

	Have you covered this in the plan?
What are your competitors' strengths? What are your competitors' weaknesses? What is your strength? What is your weakness? What is your competitive advantage? How will you distribute your goods? How will you promote your goods? What is your customer service policy?	

4.0 CONCLUSION

In this unit, we have discussed competition and marketing plans. We have also discussed the analytical framework for discussing competition. Apart from these, we have provided a check list for marketing plan.

5.0 SUMMARY

We have discussed competition and marketing plans. We saw how competition and marketing plans relate to each other. The framework for analysis presented discussed industry outlook and a company's position in the industry.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss the five basic forces that govern competition in industry.

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

Michael E. Porter. (1980). Competitive Strategy: Techniques for *Analyzing Industries and Competitors*. New York: Free Press.

UNIT 5 PROJECT COST ANALYSIS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Body
- 3.1 Project Cost Analysis
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 4, we discussed competition and marketing plans. We saw how competition takes place in the market place. We also discussed components of marketing plans as prepared by project initiators. The marketing plan as we discussed is very important to both the project initiators and the evaluators.

In this unit, we shall discuss project cost analysis which is very important in this course.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain what project cost analysis is
- discuss how the analysis can be prepared.

3.0 MAIN CONTENT

3.1 Project Cost Analysis

Project cost analysis provides total frameworks for calculating or estimating the total cost of a project. For example, a firm wants to set up a garri processing plant to enable it serve the food needs of a growing population. How does the firm know the cost of the envisaged garri processing plant?

To guide our discussions, let us define project cost as all those costs that are incurred in the process of setting up a project. The costs must be attached to the project. And the list of the items must be exhaustive. But we need to arrange the cost items in an orderly and consistent manner so that like items stay together. To ease our discussions and to make them as easy as possible, we shall divide project cost items into the following sub-headings:

- Cost of land
- Cost of building
- Cost of machinery and equipment
- Cost of utilities
- Cost of furniture and other fittings
- Cost of vehicles
- Pre-operational expenses
- Working capital

Although we have listed the cost sub-headings, we shall go ahead and prepare a small checklist that will guide us. After the checklist, we will work through a practical demonstration using a vegetable oil refining plant as an example.

Table 23: The Cost of Land -A Checklist

	Have you included this in your cost?
Cost of purchase of the land	
Cost of Surveying of the land	
Cost of certificate of occupancy	
Cost of Legal documentation	
Cost of perimeter fence	

Table 24: The Cost of Building –A Checklist

	Have you included this in your cost?
Cost of architectural design	
Cost of structural designs	
Cost of electrical designs	
Cost of factory buildings	
Cost of offices	

Table 25: The Cost of Machinery/Equipment- A Checklist

	Have you included this in your cost?
Cost of locally purchased machinery	
Cost of imported machines	
Freight and insurance costs	
Custom duties and other costs.	
Installation and commissioning costs	
Test running costs	

Table 26: The Cost of Utilities -A Checklist

	Have you included this in your cost?
Cost of private transformer	
Cost of generator	
Cost of water bore hole with fittings	

Table 27: The Cost of Vehicles -A Checklist

	Have you included this in your cost?
Cost of vehicles for management	
Cost of vehicles for other staff	
Cost of distribution vans	
Cost of distribution Lorries	

Table 28: Working Capital Checklist

	Have you included this in your cost?
Purchase of raw materials	
Purchase of diesel/fuel	
Payment of salaries	
Administration costs	
Selling costs	

SELF ASSESSMENT EXERCISE

List and explain 10 items which you think should appear in a project cost analysis of a start-up sachet water manufacturing plant.

A Worked Example

Analysis of Project Cost in a Vegetable Oil Refining Plant

Estimates of Project Cost

Land for the project	N 4,000,000
Civil works and foundations	5,000,000

Steel Structures

Includes H Beams, U channels, Angles, checker plates, Railing pipes, Roofing materials	- 13,000,000
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Total Land, Buildings and

Steel Structures	- 22,000,000
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Storage Tanks

2 units' crude oil tank – 200 tons	- 3,000,000
1 unit refined oil tank- 300 tons	- 2,000,000
1 unit fatty acid tank – 50 tons	- 850,000
1 unit water storage tank – 20 tons	- 750,000
1 unit diesel storages tank – 20 tons	- 750,000
1 unit furnace oil tank – 20 tons	- <u>750,000</u>

Sub-Total = **8,100,000**

=====

Utilities

1 unit 500 KVA transformer	- 3,500,000
1 unit 500 KVA generator	- 10,000,000
1 unit water bore hole	- <u>500,000</u>

Sub-Total = **14,000,000**

Machinery and Equipment (Imported)

Full line vegetable oil refining plant consisting of the following:

- Continuous oil pre-treatment section
- Continuous bleaching section
- Continuous physical refining and deodorising section
- Thermal oil heating units
- Water cooling system
- Steam generation and distribution system

N

Total C & F Lagos U \$ 695,000*N132	=	91,740,000
Bank charges (L/C etc)	=	500,000
Port clearing and other Misc. charge	=	<u>6,500,000</u>
Total: machinery and equipment	=	<u>98,740,000</u>

Pre-Operational Expenses

Feasibility studies	=	300,000
Project management consulting services	=	500,000
NAFDAC for registration/documentation	=	150,000
Travels and tours (local and overseas)	=	<u>500,000</u>
Total: pre-operational expenses	=	<u>1,450,000</u>

Summary of Project Cost

Land, building and steel structures	=	22,000,000
Machinery and equipment	=	98,740,000
Storage tanks	=	8,100,000
Utilities	=	14,000,000
Pre-operational expenses	=	1,450,000
Sub-Total	=	<u>144,290,000</u>
Working capital	=	<u>30,617,994</u>
Project Grand Total	=	<u>174,907,994</u>

Analysis of Working Capital Requirements

		N
One week purchase of raw materials	=	29,697,261
One month factory salary/wages	=	482,820
One month diesel, oil and lubrication expenses	=	<u>437,913</u>
Total	=	<u>30,617,994</u>

Table 29: A Proposed Financing Plan (N)

	Project Sponsor	Bank	Total
Land, building and steel structures	9,000,000	13,000,000	22,000,000
Machinery and equipment	20,800,000	77,940,000	98,740,000
Storage tanks	-	8,100,000	8,100,000
Utilities	14,000,000	-	14,000,000
Pre-operational expenses	1,450,000	-	1,450,000
Sub-Total	45,250,000	99,040,000	144,290,000
Working capital	30,617,994	-	30,617,994
Total	75,867,994	99,040,000	174,907,994

4.0 CONCLUSION

Project cost analysis is an important aspect of our study of project evaluation. Project cost analysis is important to both the project initiator and the financial analyst who may want to evaluate a project.

5.0 SUMMARY

In this unit, we discussed project cost analysis. In doing this we agreed that cost of land, buildings, machinery and equipment, utilities, furniture and fittings, etc., all form part of the total project cost. We also used a check list to guide the preparation of the cost analysis. Finally we used a worked example of a vegetable oil refining plant to throw more light on the project cost analysis.

6.0 TUTOR-MARKED ASSIGNMENT

Why do you think that it is important to know the total cost of a project?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

Wearne, S.H. (1989). Control of Engineering Projects. London: Thomas Telford.

MODULE 3

- Unit 1 The Projected Income Statement
- Unit 2 Projected Cash Flow Statements
- Unit 3 The Projected Balance Sheet
- Unit 4 Project Evaluation Criteria
- Unit 5 Introduction to Economic Analysis

UNIT 1 PROJECTED INCOME STATEMENT CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Projected Income Statement
 - 3.2 The Structure in the Projected Income Statement
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 5 of Module 2, we discussed project cost analysis. We discussed how to cost a project, especially a start-up project. We saw that fixed costs and working capital all add up to constitute the project cost. In this unit, we shall discuss the projected income statement which is a very vital statement required for project analysis and evaluation.

The key basis for financial planning and project evaluation is financial information. The financial information is required to record, compare and evaluate a firm's earning power and ability. In an already existing project, the financial information is already provided since it is a historical data. The income statement or the profit and loss account is a summary of revenues, expenses and net profit of an enterprise for a period of time. This serves as a measure of the firm's profitability over the period. For an on-going project or firm, when prepared, the income statement becomes a historical statement. The projected income statement is a forecast of the revenues, expenses and the net profit of an enterprise or project.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of projected income statement
- discuss its application in project evaluation
- prepare a projected income statement.

3.0 MAIN CONTENT

3.1 The Projected Income Statement

The projected income statement is usually needed by a variety of people. Some of the users of the projected income statement might have direct interest in the firm while others have indirect interest. The owners or sponsors of a project have a direct interest in the projected income statement. It is so because they are entrusting their investment to the firm. They wish to know before hand what the revenues, expenses and net profit of the firm will be, and most importantly, their own expected dividends.

Another important group that is expected to have a direct interest in the projected income statement of a project is the management. Usually when a project is conceived and a project plan is written, the plan will contain the projected income statement as conceived by the project sponsors or consultants. Usually, the projected income statement is handed down to the project managers as a guide.

Also financial institutions are interested in a projected income statement.

Practically, when any firm approaches a financial institution for financial assistance, the firm is expected to prepare a business plan or a project feasibility study which contains, amongst other things, the projected income statement. Financial institutions need to study the projected income statement to evaluate the revenues, expenses and profitability of the investment project. When they do this, they will also test the cash flows of the project to see whether the proposed project can repay any loan granted together with the interest.

Other people that might be interested in the projected income statement are potential investors. Potential investors need to examine the projected income statement to decide whether or not they will invest in a firm.

3.2 The Structure of the Projected Income Statement

We have just explained what the projected income statement is. It is a statement that shows projected revenues, projected expenses, and of course, net profit of a proposed investment, an expansion project or an existing project.

In the standard practice, there is an acceptable arrangement that should group like items together and this leads to building a projected income statement that is broken into revenues, expenses and the net profit.

- Revenues

Ordinarily, revenues are the value of output of goods or services that an enterprise supplies to its customers. Revenues, therefore, arise when a firm produces or manufactures goods which it sells to third parties for a fee. Secondly, revenues can arise when a firm is engaged in the buying and selling of goods. It purchases goods which it later resells at a profit or a loss as the case may be. Thirdly, revenues can also arise through provision of services by a firm. A hospital may specialise in surgery and provide surgical services to its customers for whom it collects relevant payments, which when added up, make up the revenues.

Finally, a firm can earn revenue by loaning its economic resources. For example, a bank lends money to customers and earns interest income.

The interest earned is revenue. In projecting for revenues in a project situation, care must be taken so that proper estimates or forecasts are made. And this is made qualitative judgment plus quantitative judgment on the part of the project evaluator. For example, if the project is a manufacturing facility that will produce goods for the market, the best option is to start with the known market price of the good to be produced. For example, if the good in question is the type of bread that sells for N100 a loaf, then the project evaluator or initiator has to start from the known price of a loaf of bread and that is N100 a loaf. If the number of loaves of bread to be produced per annum amount to 1,000,000 then the projected revenue of the project is N100,000,000. Likewise, if a firm is engaged in the provision of services, the revenues likely to be earned can be easily estimated. If for example a hospital is projecting revenues, it has to first estimate the likely number of patients that will use its facility and also the average fee it charges a patient. The number of patients multiplied by the average fee per patient will give us the projected revenue of the health facility.

The projection for revenues can cover various periods. In most organisations, revenue projections for project evaluation purposes stretch over a period of three years. Some banks ask for five year revenue forecasts. In the revenue projections care must be taken so as not to overstate the revenues or underestimate them.

- Expenses

The cost of earning revenue is known as the expense. Expenses are different from costs. Cost is the outlay incurred to acquire some asset.

For example, when a car is purchased by a company for its business, the sum used to purchase the vehicle is the cost of the vehicle. If the vehicle uses fuel for the firm's operations, that constitutes an expense. In projecting the expenses of a firm's investment, a lot of factors are usually taken into consideration.

Firstly, we have to get proper estimates of the current cost profile of the various items. For example, when projecting gas and oil expenses of a project, the proper starting point is to collect data on the current prices of gas and oil.

Revenue Projections

From the proposed production plan, the following is the revenue profile for the project in year one (year 2007).

Table 30: Revenue Projection for a Vegetable Oil Refining Plant

Table 30: Revenue Projection for a Vegetable Oil Refining Plan

Projected Year One Revenues			
Product	Quantity Sold (Tons)	Price Per Ton N	Total Revenue N
Refined Vegetable Oil	12,498	145,000	1,812,210,000
Palm Kernel Cake (PKC)	18,418	5000	92,090,000
Palm Kernel Sludge (PKS)	1,315	4000	5,260,000
Fatty acid	657.84	100,000	65,784,000
Total			1975,344,000

Consumption of Utilities and Chemicals per Ton of Bleached and Refined Vegetable Oil

Steam at 50 psig = 70kg

Barometric water = 6 m³

Clean water in circulation = 7 m³

Fuel oil = 4 kg

Bleaching earth = 15 kg

Citric acid = 200 gms

Phosphoric acid (for dosing) = 300 gm

Vegetable Oil Packaging Expenses

The refined vegetable oil will be sold in two ways:

1. Direct to vegetable oil distributors who will purchase the vegetable oil in tanker loads. In this case, the vegetable Oil tankers will come and load vegetable oil at the factory.
2. The refined vegetable oil will be filled into plastic jerry cans of 9 litres and 18 litres capacity and also sold to the market. The purpose of this is to ensure that the brand of vegetable oil will be in affordable units and prices to the market.

Table 31: Projected Manufacturing Account for a Vegetable Oil

Table 31: Projected Manufacturing Account for a Vegetable Oil Refining Plant

Projected Manufacturing Account for Year Ending 31st December

	2007	2008
Opening raw materials	10,000,000	15,000,000
Raw materials purchased	1,544,257,610	1,544,257,610
	1,554,257,610	1,559,257,610
Raw materials at close	15,000,000	9,000,000
Raw materials consumed	1,539,257,610	1,550,257,610
Add Factory Overheads		
Diesel, oil and lubricant	5,254,959	5,517,707
Factory uniform	110,000	-
Electricity and light	3,721,819	3,907,910
Plant/Machinery repairs	3,002,287	3,152,401
Laboratory consumables	438,820	500,000
Laboratory equipment repair	50,000	80,000
Generator Repairs and maintenance	8,46,556	888,883
Weighbridge fare	290,122	300,000
Salaries and wages	5,793,840	6,083,532
Welding gas	218,499	240,000
Cleaning and sanitation	87,595	90,000
Depreciation	17,248,071	17,248,071
Total factory overheads	37,062,568	38,008,504
Cost of manufactured goods	1,576,320,178	1,588,266,114

Table 32: Projected Expenses for a Vegetable Oil Refining Plant

Projected: Selling and Distribution Expenses

	2007	2008
Selling and Distribution Expenses		
Advertising	5,000,000	5,000,000
Car and bus running expenses	1,782,230	1,871,341
Transports and travelling	2,185,317	2,185,317
Loading and off loading	586,050	586,050
Gifts, entertainment, donations	293,306	293,306
Public relations	418,813	400,000
Total	10,265,716	10,336,014

Administrative Expenses		
Printing and stationery	310,324	325,840
Truck repairs & maintenance	585,862	615,155
Telephone, courier & postages	900,000	900,000
Consultancy fee	120,000	130,000
Security expenses	102,072	107,175
Medical expenses	1,038,632	1,090,563
Audit fee	120,000	120,000
Building maintenance	389,942	409,439
Directors remuneration	7,200,000	7,200,000
Interest and bank charges	16,000,000	12,000,000
Insurance premium	350,000	350,000
Salaries & wages (office)	3,257,100	3,419,955
Depreciation provisions	1,889,544	1,889,544
Total	32,263,476	28,557,671

Table 33: Projected Trading, Profit and Loss Account for a Vegetable Oil Refining Plant

**Projected Trading, Profit and Loss Account for the Year Ending
31st December**

	2007	2008
Sales	1,975,344,000	1,975,344,000
Opening Stock	30,000,000	40,000,000
+ Cost of Manufactured goods	1,576,320,178	1,588,266,114
Less Stock at Close	40,000,000	50,000,000
=Cost of Sales	1,566,320,178	1,578,266,114
Gross Profit	409,023,822	397,077,886
Deduct		
Selling and distribution expenses	10,265,716	10,336,014
Administrative expenses	32,263,476	28,557,671
Total expenses	42,529,192	38,893,685
Profit before tax	366,494,630	358,184,201
Tax provision	117,278,281	114,618,944
Profit after tax	249,216,3349	243,565,257

SELF ASSESSMENT EXERCISE

List and explain four expense items that can be found in a projected income statement.

4.0 CONCLUSION

We have discussed the projected income statement. We discussed the structure of the projected income statement, revenues, expenses and net profit concepts. Finally we used as an example to demonstrate a projected income statement.

5.0 SUMMARY

We have treated the projected income statement in this unit. The projected income statement is one of the most important items in project evaluation from the project sponsor's position or from the bank or analyst's position.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss the likely users of a projected income statement.

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 2 PROJECTED CASH FLOW STATEMENTS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Projected Cash Flow Statements – Meaning and uses
 - 3.2 The Structure of the Projected Cash Flow Statement
 - 3.2.1 Cash Inflows
 - 3.2.2 Cash Outflows
 - 3.3 Sensitivity Analysis
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 1 we discussed the projected income statement. There we discussed the concept of revenues and expenses and also net profit. We also discussed the fact that the projected income statement is used by a variety of users like the project initiators, bankers and financial analysts. In this unit, we shall discuss the projected cash flow statements.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain what a projected cash flow statement is
- explain how it can be prepared
- explain the usefulness.

3.0 MAIN CONTENT

3.1 Projected Cash Flow Statement – Meaning and Uses

It is important to understand and analyse the projected cash flows of the firm. We shall begin our discussion by defining a cash flow statement. A cash flow statement is a statement that shows the actual receipt of cash (inflows) and the disbursement of cash (out flows) of a firm or project. Having said that, we can now go ahead to define a projected cash flow statement.

A projected cash flow statement is a statement which shows the forecasts of actual receipts of cash (inflows) and the disbursement of cash (outflows) of a firm or project. There are many users of information contained in projected cash flow statements. The first user of the projected cash flow statement is the project sponsor or initiator.

The project sponsor or initiator is interested in knowing well in advance the future cash flows of the firm. This is important because the future financing needs of the firm have to be known well in advance. The project initiator needs to distinguish between credit sales and cash sales.

If the project initiator does not distinguish between credit sales and cash sales, then his/her project may suffer cash flow problems. The initiator may not be able to estimate the amount of cash needs of the project as well as timing of the cash needs.

Similarly, providers of finance especially the lending banks are usually very interested in the projected cash flow statement. They need to determine the firm's ability to service debt. The debt in question may be existing debts or future debts. Ability to service debts is a function of future cash flows.

Projected cash flow statements assist us to evaluate a firm's future performance and of course financial condition that enables the project evaluator answer the following questions.

- What is the nature of the firm's projected cash flow statement?
- Will the projected cash flow be able to service the project's debts (loan, overdraft + interest)?
- When will the project need financing and to what extent?
- How should the loan or overdraft or finance be structured?
- How stable are the cash flows?

3.2 The Structure of the Projected Cash Flow Statement

The basic format of the projected cash flow statement is displayed in Table 33 is a projected cash flow statement of a company. But it covers a period of only 3 months. You can project a cash flow as long as you require but the basic principles should be followed. If you examine Table 33 properly, you will realise that the projected cash flow statement is divided into two main sections, namely:

1. The cash inflows
2. The cash outflows (outgoings)

We will now go ahead to break down the projected cash flow statement.

Table 34: A Three Month Projected Flow Statement Niger Limited Cash Inflows January

**Table 34: A Three Month Projected Flow Statement
Niger Limited**

Cash Inflows	January	February	March
Capital introduced	10,000,000	-	-
Loan introduced	20,000,000	-	-
Cash sales	40,000,000	50,000,000	60,000,000
Total Cash Inflows	70,000,000	50,000,000	60,000,000
Cash Outflows			
Raw material	30,000,000	30,000,000	35,000,000
Salary and wages	2,000,000	2,200,000	2,500,000
Office admin expenses	500,000	550,000	600,000
Electricity and gas expenses	500,000	550,000	600,000
Loan repayment	2,000,000	2,000,000	2,000,000
Interest charges	400,000	400,000	400,000
Selling expenses	1,000,000	1200,000	1,300,000
Total Cash Outflows	36,400,000	36,900,000	42,400,000
Cash Surplus/(Deficit)	33,600,000	13,100,000	17,600,000
Opening Cash Balance	-	33,600,000	46,700,000
Closing Cash Balance	33,600,000	46,700,000	64,300,000

3.2.1 Cash Inflows

We have seen that a projected cash flow statement is broken down into the inflows and the outflows (outgoings). Let us now proceed to examine some of the key items contained in the projected cash flow statement. The items will vary from capital to loan introduced and also cash sales. We shall treat them individually.

- Capital Introduced

Every firm or project should have a capital. At the time a project conceived or is being expanded, the owners of the firm usually bring in what is known as capital.

In a limited liability company, the share holders usually contribute the capital of the firm. In cash flow construction, capital is usually entered as an inflow. The reason is clear. When you introduce capital, you bring in cash.

- Loan

Another item appearing in a projected cash flow statement is loan. In some cases, a project is funded through loan from banks.

The loan will usually have the following features:

1. The loan amount will be specific
2. The loan has an interest rate attached to it.
3. The loan will be repaid in agreed installments.

- Cash Sales

The sales figure is the most important in a projected cash flow statement. Projections for sales pose one of the most difficult challenges in cash flow projections. We must quickly distinguish between total sales, credit sales and cash sales. Total sales are the total value of goods or service sold to third parties. Credit sales refer to sales for which payment is not made immediately. The figure for credit sales is usually

transferred to the debtors list. Cash sales are the difference between total sales revenue and credit sales.

As far as we are concerned, the cash sale is the most important component of sales and it is the one that appears in the projected cash flow statement. Credit sales are only reflected in the cash flow when they are converted to cash. For example, if in January 2007, a company sells four cars at a credit of N10,000,000. In the cash flow for January 2007, there will be no entry for cash sales. But if in February 2007, the

company receives a cash payment of N5,000,000, then that figure will appear in the inflows column for February 2007.

The basic rule is that only actual cash received is usually entered in the inflow column. In actual practice, projecting for cash sales will involve exhaustive consideration of the following:

- General economic outlook in the country
- The industry outlook. What is the demand situation like? What is the supply situation?

- What is the structure of competition and how fierce is it?
- What will be the effect of competition on prices in the firm's area of operation?

3.2.2 Cash Outflows

Cash outflows or outgoings will include all expenses that use cash. They will include items like:

- Raw material expenses
- Salary and wages
- Stationery
- Loan repayment
- Interest charges
- Selling expenses
- Office admin expenses
- Oil and gas expenses
- Taxation
- Rates and permits

3.3 Sensitivity Analysis

Usually, when constructing a projected cash flow statement, the first set of projections is what we call normal estimates of cash flows. Normal estimates of cash flows especially cash revenues are based on all things being equal; but all things cannot be equal. A lot of things may happen.

In a market, supply can come from unexpected source and cause prices to fall. Prices of raw materials may rise suddenly and all these tend to reduce our earlier revenue projections and jack up expenses.

Sensitivity analysis provides the tool for subjecting a project's cash flow s to adverse market situations. Sensitivity analysis seeks to adjust revenues for risk and also costs. In conducting sensitivity analysis, we say that we are adjusting a project's cash flows for risk. If we conduct sensitivity analysis on a cash flow, we may do that by making one, two or three of the following assumptions:

- Due to intense competition the project will not be able to make the earlier normal sales volume. Cash revenues will drop.
- Due to excess supply, prices in the market will fall, that will reduce cash revenues.
- The prices of raw materials and other items will rise. A close examination will reveal that the impact of any of the above will have the effect of reducing the cash revenues of a project.

We now state that if a normal projected cash flow statement is reconstructed to accommodate the fact that the market could be worse, we say that the reconstructed cash flow is now called a risk "adjusted cash flow statement." The risk- adjusted cash flow is a pessimistic cash flow and should be admired by analysts.

Table 34 is a risk-adjusted income statement reconstructed from Table 33.The critical assumption is that Table 34 assumes that only 75% of cash sales of Niger limited will be realised.

Sensitivity analysis is a tool for subjecting cash flows to risk analysis. The key objective of the sensitivity analysis is to forecast a worst-case scenario for a project.

Other ways of conducting a sensitivity analysis is to assume that expenses attached to a project will increase.

Table 35: A Three Month Risk-Adjusted Projected Cash Flow Statement Niger Limited

Table 35: A Three Month Risk-Adjusted Projected Cash Flow Statement Niger Limited

Cash inflows	January	February	March
Capital introduced	10,000,000	-	-
Loan introduced	20,000,000	-	-
Cash sales	30,000,000	37,500,000	45,000,000
Total Cash Inflows	60,000,000	37,500,000	45,000,000
Cash Outflows			
Raw material	30,000,000	30,000,000	35,000,000
Salary and wages	2,000,000	2,200,000	2,500,000
Office admin expenses	500,000	550,000	600,000
Electricity and gas expenses	500,000	550,000	600,000
Loan repayment	2,000,000	2,000,000	2,000,000
Interest charges	400,000	400,000	400,000
Selling expenses	1,000,000	1,200,000	1,300,000
Total Cash Outflows	36,400,000	36,900,000	42,400,000
Cash Surplus/(Deficit)	23,600,000	600,000	2,600,000
Opening Cash Balance	-	23,600,000	24,200,000
Closing Cash Balance	23,600,000	24,200,000	26,800,000

4.0 CONCLUSION

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PROJECT EVALUATION

We have discussed projected cash flow statements. We discussed the nature of cash flow statements and their users. We also examined the structure of cash flow statements. We used an example to show what a projected cash flow statement looks like. We also constructed a risk adjusted cash flow statement.

5.0 SUMMARY

In this unit we treated projected cash flow statements which we said constitutes a very vital document used in the evaluation of projects. The cash flow gives us a picture of cash inflows and outflows together with timing.

6.0 TUTOR-MARKED ASSIGNMENT

Why do you think that banks are interested in projected cash flow statement of projects?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 3 THE PROJECTED BALANCE SHEET

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Meaning of a Balance Sheet
 - 3.2 Components of a Balance Sheet
 - 3.2.1 Assets
 - 3.2.2 Liabilities
 - 3.3 Construction of the Projected Balance Sheet
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

In Unit 2, we discussed the projected cash flow statement. There, we discussed inflows and outflows (outgoings) of a firm or project. We also discussed the structure of the projected cash flow statement and went a step further to provide an example of a projected cash flow statement. In this unit, we shall discuss the projected balance sheet.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of a projected balance sheet
- explain the preparation of the projected balance sheet
- prepare a projected balance sheet.

3.0 MAIN CONTENT

3.1 Meaning of a Balance Sheet

Before we delve into the projected balance sheet proper, it is very important for us to first understand what a balance sheet is. The balance sheet or the statement of financial position is one of the most important financial statements. It shows the financial condition or better still, the statement of affairs of a firm or business. We Will therefore, define a projected balance sheet as a forecast of a future balance sheet as at a future date.

3.2 Components of the Balance Sheet

The balance sheet has two main sides namely:

- Assets
- Liabilities

3.2.1 Assets

When we are talking of assets generally, we are talking about the valuable possessions owned by the firm, valued in monetary terms. They will include land and buildings, stock of goods, raw materials, cash, vehicles and other valuables.

But generally we can classify assets under the following headings:

- Current assets
- Investments
- Fixed assets

Lets us now discuss each of them:

Current Assets

The current assets of a firm or business are those assets which are held in the form of cash or expected to be converted into cash in a period or within the accounting period of the firm. In actual practice, the accounting period is usually of one-year duration.

The current assets of the firm will include the following:

- Cash
- Book debts (debtors).
- Prepaid expenses
- Marketable securities.
- Stock

Let us start with cash which is one of the most liquid current assets. Cash will mean cash on hand or cash in the bank.

Another current asset which is important is book debts (debtors). Book debts are sometimes called account receivables. These are amounts due from debtors to whom goods have been sold or service rendered. Some of the book debts may be realised by the firm. If they are not realized they turn into what is called bad debts and may be written off later.

Prepaid expenses are also current assets. They are expenses of future periods that are paid in advance. An example of prepaid expenses is rent which may be payable in advance by a firm. For example in January 2007, a firm may pay rent for its office for January 2007 to December, 2007. If in April, 2007, the financial year of the firm ends, it will regard the portion of rent paid from May 2007 to December, 2007 as a prepaid expense which invariably is a current asset.

Stock (inventory) is another current asset and includes raw material, work in process and finished goods. The raw materials and work in process are required for maintenance of the production function of the firm.

Finished goods usually will be already packed and kept ready for purchase by customers of the business. Marketable securities are the firm's short term investment in shares, bonds and other securities. The securities are usually marketable and can be converted into cash in a very short time.

Investments

Investments represent the firm's investments in shares, debentures and bonds of either firms or the government. By their nature, the investments are long term. It is important to note that the investments yield income to the firm.

Fixed Assets

Fixed assets are long-term assets held for periods longer than one year. They are usually held for use in the firm's business. Fixed assets include land, buildings, machinery and equipment, vehicles, etc.

We have briefly seen what the assets are. We shall now move over and discuss liabilities.

3.2.2 Liabilities

When we talk of liabilities, we mean the debts that are payable by the firm or business to creditors. They may represent various obligations due to various third parties arising from various business transactions.

Examples of liabilities include creditors, accounts payable, taxes payable, bonds, debentures, etc.

But generally, liabilities are divided into two broad groups namely:

- Current liabilities and
- Long-term liabilities

We shall discuss each of the groups

Current Liabilities

Current Liabilities are those debts that are payable in a short period usually within a year. One of the major current liabilities is the bank overdraft. Most banks grant their customers overdraft which are repayable within a period of one year. The other type of current liability includes provisions for taxes and dividends. These are liabilities that will mature within one year.

Another type of liability is expenses payable. The firm may expenses to public power supply organisation or have rents to be paid.

Long Term Liabilities

Long-term liabilities are the obligations which are payable in a period of time greater than a year. One of the long term liabilities of a firm is term loan. The firm may borrow money from a bank that will be repayable over a period preceding one year. Such a borrowing or loan is regarded as long-term liability. Also, when a firm needs to raise a large sum of money, it debentures. A debenture is an obligation on the part of a firm to pay interest and principal under the terms of the debenture.

However one of the most stable types of long term liability is owners' equity. Owner's equity represents the owners' interest in the firm. In practical terms, the total assets of a firm less the liabilities realized on the interest. The owners interest in the firm consist of

- Paid up share capital and
- Retained earnings (undistributed profits).

SELF ASSESSMENT EXERCISE

Discuss the components of a balance sheet.

3.3 Construction of the Projected Balance Sheet

In the earlier sections of this unit, we have discussed the balance sheet generally. That was from a historical perspective. We shall now discuss the construction of a projected balance sheet.

The following steps are recommended:

- Start from the determination of sales revenue.
- Compute cost of goods sold (COGS)
- Compute admin expenses, general and selling expenses.
- Bring forward sundry income and expenses and generate the projected income statement.
- Determine taxation, dividends and retained earnings.
- Project for assets.
- Project for liabilities.

Table 36: A Projected Balance Sheet

Projected Balance Sheet (N)

As at	Year 1
Assets Employed	
Fixed assets	66,629,024
Preliminary expenses	33,140
Total	66,662,164
Current Assets	
Stock-in-trade	12,000,000
Raw materials	12,000,000
Debtors and prepayment	1,000,000
Cash and bank balance	2,623,497
Total Current Assets	27,623,497
Current Liabilities	
Creditors and accruals	2,000,000
Tax provisions	10,247,185
Total current liabilities	12,247,185
NET CURRENT ASSETS	15,376,312
Total Assets	82,038,476

<p>Record leases if any and project for the future amortisations.</p> <p>Bring forward other sundry liabilities,</p> <p>Estimate taxation based on the projected income statement and forecast the future trend.</p> <p>From the net profit estimate amount going to dividends and retained earnings.</p> <p>Record retained earnings. Record paid up capital. Fine tune grey areas.</p> <p>Total the liabilities to agree with total assets.</p>	
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4.0 CONCLUSION

We have discussed the projected balance sheet. We first discussed assets generally and then went ahead to discuss liabilities. We discussed the construction of the projected balance sheet and provided a checklist for the projection for both assets and liabilities.

5.0 SUMMARY

We have treated the projected balance sheet. The projected balance sheet as we discussed is a forecast of a future balance sheet as at a future date. It will show what the assets will be and also what the liabilities will be. It is a very important document in project evaluation.

6.0 TUTOR-MARKED ASSIGNMENT

1. Who do you think are the users of the information in a projected balance sheet?
2. Why do they need the information contained in it?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 4 PROJECT EVALUATION CRITERIA

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Traditional Criteria of Project Evaluation
 - 3.2 The Discounted Cash Flow (DCF) Method
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

Let us recall that the focus of this course is project evaluation. From unit 1, we discussed the project cycle. From there we moved on to discuss factors affecting location of projects. We also discussed capacity and production planning, demand analysis, supply analysis, project cost analysis, projected income statements, cash flows and the balance sheet.

All these have set the stage for us to tie the discussions. We now want to discuss a very crucial aspect of this course, which is the project evaluation criterion. Project evaluation criteria seek to present the methods to be adopted to measure the value of an investment project. The evaluation enables us to choose between two or more projects once the values are known. Any project evaluation criterion to be adopted should posses the following characteristics:

- It should provide a means to distinguish between acceptable and unacceptable projects.
- It should also be able to rank projects in order of their desirability.
- It should be a criterion that is applicable to any conceivable project.
- It should recognise that bigger cash flows are preferable to smaller ones.
- It should recognise that early cash flows or benefits are preferable to later cash flows or benefits.

Although there are a lot of project evaluation criteria in the literature, we shall discuss the most widely accepted criteria which are the traditional criteria and the discounted cash flow (DCF) criteria

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss project evaluation criteria
- distinguish between the traditional criteria and the discounted cash flow relative to project evaluation.

3.0 MAIN CONTENT

3.1 Traditional Criteria of Project Evaluation

In the traditional criteria, we shall discuss two methods, namely: the payback period and the accounting rate of return method.

The Payback Period

The payback period is one of the most popular methods of project evaluation. The payback period is defined as the number of years required to recover the original cash outlay invested in a project. If the project yields constant annual cash inflows, the payback period can be computed by dividing cash outlay by the annual cash inflow. So we say thus:

$$\text{Payback period} = \frac{\text{Cash outlay (investment)}}{\text{Annual Cash inflow}}$$

Example

A project requires a cash outlay of N200,000 and yields an annual cash inflow of N50,000 for a period of 10 years; calculate the payback period.

The payback period is N200, 000 = 4 years.

$$----- \\ N50, 000$$

However, it is to be noted that in the case of unequal cash inflows, the payback period can be computed by adding up the cash inflows until the total is equal to the initial cash outlay. The payback period is greatly admired by project evaluators because it is very simple to understand. Another good virtue of the payback period is that it costs less than most of the other sophisticated methods.

However, despite its simplicity, the payback period may not be a desirable investment criterion. In the first place, it fails to recognise the cash flows that come in after the payback period. Again it fails to consider the pattern of cash inflows and that early cash inflows rather than later cash inflows.

Despite its weakness, the payback period is very popular analogy. It tries to emphasizes early recovery of an investment. This means that it gives an insight into the cash inflows of the project.

The Accounting Rate of Return (ARR) Method

The accounting rate of return (ARR) is a method that uses accounting information to measure the profitability of an investment. The accounting rate of return (ARR) is computed by dividing average income after taxes by the average investment.

$$ARR = \frac{\text{Average Income}}{\text{Average Investment}}$$

$$= \frac{\text{Average Income}}{\text{Average Investment}}$$

Example

A project costs N100,000 and has a scrap value of N40,000. The stream of income before depreciation and taxes are N40,000, N50,000, N60 , 000 for the first three years. The tax rate is 50% and depreciation is on straight line basis.

Calculate the accounting rate of return for the project.

Solution

	Year 1	Year 2	Year 3
	N	N	N
Earnings before depreciation and taxes	40,000	50,000	60,000
Depreciation	20,000	20,000	20,000
Net earnings before taxes	20,000	30,000	40,000
Taxes at 50%	10,000	15,000	20,000
Net earnings after taxes	10,000	15,000	20,000

Book value of investment

Beginning	100,000	80,000	60,000
Ending	80,000	60,000	40,000
Average	90,000	70,000	50,000

$$\text{Average earnings} = \frac{10,000 + 15,000 + 20,000}{3} \\ = 15000$$

$$\text{Average investment} = \frac{90,000 + 70000 + 50,000}{3} \\ = 70000$$

$$\text{Accounting rate of return} = \frac{15000}{70000} \\ = 21.42\%$$

As an accept or reject criterion, the ARR method will accept all those projects whose ARR is greater than the minimum rate established by management. If the ARR is lower than the minimum rate established by management, then the project should be rejected. The ARR method is very simple to understand and use. It can also be easily calculated using accounting information.

However, the ARR suffers from three main weaknesses. First it uses accounting profits not cash flows in appraising projects. Secondly ARR ignores the time value of money. The profits occurring in different periods are valued equally.

Thirdly, it does not allow the fact that profit can be reinvested to earn more profits.

3.2 Discounted Cash Flow (DCF) Methods

We have discussed two of the traditional methods used in the evaluation of projects. One is the payback period while the other is the accounting rate of return (ARR). Although two of them are simple to use and understand, they are not theoretically sound. Both of them fail to consider the timing of cash flows. Both fail to consider the time value of money.

Because of these limitations, we shall consider two superior investment criteria which fully recognise the timing of cash flows.

The two methods are the net present value (NPV) method and the internal rate of return (IRR) method. These two methods are referred to as discounted cash flow (DCF) methods or the time-adjusted methods.

The Net Present Value (NPV) Method

This method correctly recognises the fact that cash flows arising different time periods differ in value and are comparable only when their equivalent- present values are found out.

The following steps are followed when computing the net present value (NPV).

1. A discount rate is selected to discount the cash flows. The correct discount rate should be the firm's cost of capital which is the minimum rate of return expected by the investors to be earned by the firm.
2. The present value of cash inflows and outflows are computed using cost of capital as the discounting rate.
3. The net present value (NPV) is the present value of cash inflows less present value of cash outflows.

The acceptance rule using the NPV method is to accept a project if the NPV is positive, and to reject it if the NPV is negative.

If NPV is greater than zero, then the value of the firm is expected to increase. It is also important for us to understand the interpretation of NPV. The net present value may be interpreted to mean the immediate increase in the wealth of a firm if the investment proposal is accepted. It is equal to an unrealised capital gain. The net present value can also be interpreted to represent the amount the firm could raise at a required rate of return in addition to the initial cash outlay to distribute immediately to its shareholders and by the end of the project life to have paid off all the capital raised plus interest on it.

Example

Calculate the net present value of a project which cost N500,000. But generates cash inflows of N150,000, N300,000 and N400,000 over a three year period. The required rate of return is 10%.

Solution

Year	Cash inflows	Discount factor at 10%	Present Value of Cash Inflows
	N		N
1	150,000	.909	136,350
2	300,000	.826	247,800
3	400,000	.751	300,400
Total			684,550
Less investment outlay			500,000
Net present value			184,550

In terms of merit, the NPV method is very significant since it recognizes the time value of money. It also is consistent with the objective of maximising the wealth of shareholders. However, the NPV suffers from the following limitations.

Firstly, it is fairly difficult to use.

Secondly, in computing the NPV, it is assumed that the discount rate which usually is a firm's cost of capital is known. But as we know, the cost of capital is a fairly difficult concept to measure in real life.

Thirdly, NPV may not yield a consistent answer when the projects being compared involve different amounts of investment.

The Internal Rate of Return (IRR) Method

The internal rate of return (IRR) can be defined as that rate which equates the present value of cash inflows with the present value of cash outflows of an investment. Put in another way, the internal rate of return is the rate at which the NPV of an investment is zero. It is called the internal rate because it depends solely on the outlay and the resulting cash inflows of the project and not any rate determined outside the investment.

Let C = Cash outlays of an investment

A₁ = Cash inflows received in (I+R). year 1 discounted at the cost of capital R.

A₂ = cash inflows received in year 2 (I+R)₂ discounted at the cost of Capital R.

A₃ = cash inflows received in year 3(I+R)₃ discounted at the cost of Capital R.

Write the basic equation

$$C = \frac{A_1}{(1+R)} + \frac{A_2}{(1+R)^2} + \frac{A_3}{(1+R)^3}$$

$$O = C - \frac{A_1}{(1+R)} + \frac{A_2}{(1+R)^2} + \frac{A_3}{(1+R)^3}$$

The value of R in the equation at which total cash outlays equal total cash inflows is called the internal rate of return (IRR). Usually the value of R can be found out by trial and error. Generally, if the calculated present value of the expected cash inflows is lower than the present value of cash outflows, a lower rate should be tried. On the other hand, if the calculated present value of the expected cash inflows is higher than the present value of cash outflows, a higher rate should be tried.

Example

A barbers' shop costs N32,400 to establish and is expected to generate cash inflows of N16,000, N14,000 and N12,000 over its life of three years. Calculate the internal rate of return.

Solution

Let us start by trying 16%

Year	Cash Inflow	Discount Factor at 16%	Present Value
	N		N
1	16,000	.862	13,792
2	14,000	.743	10,402
3	12,000	.641	7,692

The net present value is -N514 at 16% discount factor. Let us try a lower rate like 14%

Year	Cash Inflow	Discount Factor at 14%	Present Value
	N		N
1	16,000	.877	14,032
2	14,000	.769	10,766
3	12,000	.675	8,100

You will observe from the above calculations that when we tried 16% discount rate, the NPV was negative at -N514, when we tried 14% discount rate, the NPV became positive at N498. Therefore, the internal rate of return we are looking for lies between 14% and 16%.

The basic accept-or-reject rule, using the IRR method, is to accept the project if its internal rate of return is higher than the firm's required rate of return. However, the project should be rejected if its internal rate of return is lower than the firm's cost of capital. It is important that we understand the interpretation of the internal rate of return (IRR).

The internal rate of return (IRR) represents the highest rate of interest a firm would be ready to pay on funds borrowed to finance the project without being financially worse-off, by repaying the loan principal plus accrued interest out of the cash inflows generated by the project.

We should also see the internal rate of return method as a very sound method. As we said, it is a discounted cash flow method and also it considers the time value of money. It is also compatible with the firm's desire to maximise the owners' wealth. However the IRR method is fairly difficult to understand and it involves complex computations.

SELF ASSESSMENT EXERCISE

Distinguish between the traditional project evaluation methods and the discounted cash flow criteria.

4.0 CONCLUSION

We have discussed project evaluation criteria which we said constitute a very crucial topic in this course. We discussed traditional criteria of project evaluation. Here we mentioned the payback period and the accounting rate of return (ARR). We also discussed discounted cash inflow criteria. Here we mentioned the net present value (NPV) method and the Internal Rate of Return (IRR).

5.0 SUMMARY

Project evaluation criteria provide us with the tools with which we can choose from various investment proposals using acceptable techniques. The evaluation criteria guide the project initiator and assist him/her to choose among alternative projects. Also banks use project evaluation criteria to decide whether or not to lend money for a project.

6.0 TUTOR-MARKED ASSIGNMENT

Why are the discounted cash flow (DCF) techniques better and more acceptable than the traditional methods of project evaluation?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 5 INTRODUCTION TO ECONOMIC ANALYSIS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Financial Analysis and Economic Analysis- A Comparison
 - 3.2 The Nature of Economic Analysis
 - 3.3 Adjustments to Financial Analysis
 - 3.4 Linkage Effects of a Project
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

Generally, in a project analysis situation, most analyses focus on the cash inflows and outflows of a project. Critical expenses and incomes are usually compared to determine whether a project should be undertaken or not. But expenses and revenues in most financial analyses are mainly the consideration of a private investor.

The implication of financial analysis is that it provides a micro view of a project and concentrates attention on things like accounting profits.

Economic analysis on the other hand considers projects from a macro point of view. The type of questions asked in an economic analysis are:

1. Will the project under consideration lead to the general well being of the community, the state and the nation?
2. Will the project generate employment at various levels in the macro environment?
3. Will the project lead to economic growth?
4. What are the linkages that the project has, i.e., forward or backward linkages?
5. Will the project generate more technical knowledge?

The questions that we have asked are not exhaustive but only go to demonstrate the type of questions that economic analyses seek to answer.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of an economic analysis
- distinguish between an economic analysis and a financial analysis.

3.0 MAIN CONTENT

3.1 Financial Analysis and Economic Analysis – a Comparison

In general theory, a financial analysis tries to solve resource allocation problems. It tries to use information from projects to determine whether projects should come on stream or not. Economic analysis also tries to solve resource allocation problems in an economy. In economic

theory, resources are very scarce and it is part of any good analysis to allocate resources between competing projects. For example, resource allocation problems can arise if a community is trying to decide whether to build a school or a hospital with limited scarce resources.

Financial analysis equally tries to allocate resources but from a micro view point. So, both financial and economic analyses solve resource allocation problems.

Financial analysis tries to concern itself with issues of both benefits and costs arising from a project. In the financial analysis, the concern of the analysis is to evaluate the stream of costs attached to a project and deduct same from the stream of benefits.

If the stream of benefits is greater than the stream of costs, then project in question has a positive value and should be accepted, all things being equal. However, if the stream of costs is greater than the stream of benefits, then the project in question has a negative value and should not be accepted, all things being equal.

Economic analysis also concerns itself with costs and benefits arising from a project. If the stream of benefits is greater than the stream of costs, then the project in question has a positive value and should be accepted.

However, if the stream of costs is greater than the stream of benefits, then the project in question has a negative value and should not be accepted , all things being equal. So we could say that financial analysis and economic analysis both concern themselves with costs and benefits arising from a project. In the end, they provide answers to the question of whether a project should be acceptable or not. In evaluating projects, both use discounting and compounding techniques to arrive at their answers.

However, there exist conceptual differences between financial analysis and economic analysis. While financial analysis has a primary objective of establishing the viability and acceptability of a project from a financial view point, paying no attention to society, economic analysis has the objective of establishing the fact that a project is acceptable or not to the society as a whole. So while financial analysis has a micro objective, economic analysis has a macro objective.

Finally, in reaching a decision as to whether or not to accept a project, financial analysis and economic analysis both try to establish a relationship between costs and benefits.

For example in financial analysis, costs and benefits arising from a project are usually defined in monetary variables such as profits. But economic analysis goes really beyond the vague definitions of profit. In Economic analysis, costs are defined in terms of opportunity costs or foregone costs to the society as a whole.

SELF ASSESSMENT EXERCISE 1

Compare and contrast financial analysis and economic analysis.

3.2 The Nature of Economic Analysis

In economic analysis, the costs and benefits attached to a project are usually compared before a decision can be reached on whether or not to accept a project.

In the literature, there exist three discounted measures of project worth which we will now discuss:

The Net Present Worth

The net present worth is the difference between the present worth of benefits and the present worth of costs. We can write thus:

Net Present Worth =

Present Worth
of benefits

Present Worth
of costs

Generally, according to the net present worth theory, a project is acceptable if the net present worth is positive. If the net present worth is negative, the project will be rejected.

Benefit-Cost Ratio

If you divide the present worth of benefits of a project by the present worth of its costs, then you have what is known as the benefit-cost ratio. We can write thus:

Benefit-Cost ratio = Present worth of benefits

Present worth of costs

Generally, a project is acceptable if the benefit-cost ratio is greater than 1 (one).

If the benefit-cost ratio is exactly 1 (one), that project is a break even project.

The Internal Rate of Return (IRR)

The internal rate of return is a discount rate where the present worth of benefits is equal to the present worth of costs.

Under the internal rate of return evaluation method, a project will be acceptable if its internal rate of return is higher than the firm's required rate of return.

The starting point of economic analysis is the financial analysis of a project which should be properly concluded before embarking on an economic analysis. Some adjustments will be made to the calculations to arrive at economic data.

First, it may be necessary to include or exclude some costs and benefits which may have been included or excluded from the financial analysis.

Secondly, some project inputs and outputs may have to be revalued if their shadow prices differ significantly from their market prices.

SELF ASSESSMENT EXERCISE 2

Discuss the nature of economic analysis with emphasis on the methods of evaluating the worth of a project.

3.3 Adjustments to Financial Analyses

We have stated that the starting point of an economic analysis is a financial analysis, so if we have financial data on financial analysis, we need to make some adjustments to the financial analysis to arrive at economic analysis data. We shall now consider some of the adjustments:

Transfer Payments

Transfer payments represent transfer of resources from one section of society to another. They do not make any claim on the country's resources and as such, their impact should be clearly distinguished and analysed in the economic analysis.

One of the first transfer payments we shall consider is interest. Interest is a reward for capital. For example, if a project is funded through a bank loan, the interest component is included in the profit and loss statement.

The interest charges in the profit and loss statement represent transfer payments from a project to the provider of funds. What the project lost (interest) has become a gain to the provider of funds. In effect, both figures are equal and cancel out without any net increase to society of funds. Therefore in economic analysis, interest charges are excluded since they only represent transfer payments.

The second transfer payment we shall consider is tax. When a project is profitable it is expected to pay taxes to the government at the ruling rate. In computing the profit of a project taxes are deducted to arrive at net profit. Taxes therefore appear as outgoing cash flows. Taxes represent transfer payments from a project to government.

In the economic analysis of a project, taxes are excluded because from the point of view of the society, they are only a transfer of resources from one section of the economy to another.

The third transfer payment is subsidies. In a traditional private sectors setting, it would be unheard of to talk of subsidies. But in economic analysis, subsidies appear as important data. Most public sector projects enjoy government subsidies to enable the poor gain access to certain services which ordinarily they cannot afford without government assistance. Subsidies represent opportunity costs to a nation as a whole.

Therefore in estimating the true cost of a project in an economic analysis, subsidies should be included.

3.4 Linkage Effects of a Project

Consider a simple case where a university is newly located in an environment. Many investments will begin to spring up. New housing developments will begin to spring up; canteens will begin to spring up; hair dressing salons, etc. will begin to spring up to cater for the needs of the new university community. Such constitute the linkage effects of a project.

Generally, there are two types of linkage effects which we shall briefly discuss:

Forward Linkage Effects

Forward linkage is the stimulus given to industries that use the products of a project. A case in point is a flour manufacturing project. Flour has so many uses. If a flour mill is located in an environment, it will lead to the establishment of such projects as bakeries which will use the flour.

Backward Linkage Effects

Backward linkage demonstrates the stimulus to industries that supply the inputs to a project. For example, the establishment of a flour mill in an environment will lead to demand for wheat which is a major input for flour mill. The flour mill will lead to investment in wheat cultivation. Also, the establishment of a car assembly plant will lead to the establishment of tyre manufacturing plants that need to supply tyres to the car assembly plant.

Example of an Economic Analysis

In the year 2006, the World Bank was considering the desirability or otherwise of assisting Nigeria set up an ethanol plant covering thousands of hectares in the Niger Delta area.

Under the scheme, young farmers will be allocated hectares of land for subsidized cassava cultivation. Such inputs like fertilizers will be heavily subsidized while technical advice will be provided by the World Bank/ Nigerian agricultural experts.

4.0 CONCLUSION

In this unit, we discussed the nature of economic analysis and compared it with the financial analysis of a project. We discussed net present benefit cost ratio and the internal rate of return (IRR).

5.0 SUMMARY

Introduction to economic analysis has provided us with the tools to conduct economic analyses, with financial analyses as a starting point.

Financial analysis is the private sector's view of a project without considering a project's impact on the society. Economic analysis is a macro view of a project, taking into consideration the project's impact on society.

6.0 TUTOR-MARKED ASSIGNMENT

What do you see as the basic differences between the financial analysis of a project and the economic analysis of a project?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

MODULE 4 RISK AND COST ANALYSIS

Unit 1 The Evaluation Methods

Unit 2 Concept of Risk in an Organisation

Unit 3 Risk and Uncertainty

Unit 4 Assessment of Social Profitability

Unit 5 Cost Benefit Analysis

UNIT 1 THE EVALUATION METHODS

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Purpose of Evaluation

3.2 Types of Evaluation

7.0 References/Further Readings

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of Evaluation
- analyse the purpose of evaluation and classify different types of project evaluation.

3.0 Introduction

The evaluation of on-going and completed projects is one of the basic responsibilities of the Planning and Development Division.

3.1 Purpose of Evaluation

The final phase in the project cycle is project evaluation. The analyst looks systematically at the elements of success and failure in the project experience to learn how to plan better for the future. The basic objective of such a study is to ascertain the real worth of a project or programme as far as possible. Broadly speaking, evaluation may be defined as "a process which attempts to determine as systematically and objectively as possible the relevance, effectiveness and impact of activities in the light of the objectives". It is, thus, a critical analysis of the factual achievements/results of a project, programme or policy vis-a-vis the intended objectives, underlying assumptions, strategy and resource commitment. In specific terms, it makes an attempt to assess objectively the following:-

- (a) the relevance and validity of the objectives and design of the project/programme in terms of broader issues of development policy, sector/sub-sector priorities and strategies as well as other problems of a wider nature;
- (b) the efficiency and adequacy of the pace of progress of the project/programme where the focus is mainly on managerial performance and productivity;
- (c) the effectiveness of the project/programme - a major part of an evaluation exercise-in realizing the intended objectives from a variety of angles; and
- (d) the identification of reasons for the satisfactory or unsatisfactory accomplishment of the results of the project/programme and to deduce critical issues and lessons which may be of relevance to other on-going and future projects/programmes of a similar nature.

3.1.3 Types of Evaluation

Evaluation can be applied for different purposes as well as to a specific activity, project or programme. It is not restricted to the completion stage only but involves periodic investigations at many stages. The different types of project evaluations carried out are: (i) ex-ante evaluation, (ii) on-going evaluation and (iii) terminal evaluation/ex-post evaluation. The ex-ante evaluation/pre-approval appraisal has already been discussed with methods and techniques in Chapter-5. The on-going evaluation is carried out by the organization of its own to re-assess the projected feasibility of the PC-I content because of the time lag, while external evaluation is done by an agency other than

the body involved in the implementation of a project. On-going and post-completion evaluations are discussed below:-

(a) On-going/Mid-term Evaluation

The main purpose of an on-going/mid-project evaluation is to assist the project management to make appropriate adjustments in the changed circumstances or to rectify any shortcomings in the original design, so as to improve its efficiency and overall performance.

(b) Post-Completion Evaluation

The purpose of an ex-post or post-hoc evaluation is to discover the actual, as opposed to the projected, results of implementing a project. The aim of evaluation is primarily to compare the actual outcome of the project with the projections made at the appraisal stage. The examination of different aspects of the project can provide important lessons derived from experience for the new projects. The overall impact of the project will result in a number of effects which can be classified as costs and benefits, direct and indirect or tangible and intangible. Ex-post evaluation takes place after the completion of the project and is often more in-depth as it focuses on the analysis of impact. Besides, it is time-consuming, costly and calls for persons with special skills.

SELF ASSESSMENT EXERCISE 2

Discuss the nature of evaluation of a project.

4.0 CONCLUSION

In this unit, we discussed the nature of economic analysis and compared it with the financial analysis of a project. We discussed net present benefit cost ratio and the internal rate of return (IRR).

5.0 SUMMARY

Introduction to meaning of evaluation, the purpose of evaluation and types of evaluation. society.

6.0 TUTOR-MARKED ASSIGNMENT

Write short note on midterm evaluation and post-completion evaluation?

7.0 REFERENCES/FURTHER READINGS

Leon Ikpe (1999). Project Analysis and Evaluation. Lagos: Impressed Publishers.

UNIT 2 CONCEPT OF RISK IN AN ORGANIZATION

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Meaning of Risk

3.2 Types of Risk

3.3 Relationship between Risk and the Objectives of an Organization

3.4 Organization's Risk Exposure

4.0 Conclusion

5.0 Summary

6.0 Tutor Marked Assignment

7.0 References/Further Readings

1.0 INTRODUCTION

Risk is part of everyday life. Consequently everyone has his own view as to what risk is all about, most especially based on his own personal experiences.

Risk could range from near accident misses to catastrophic events such as the terrorist attack of the World Trade Center in United States of America in September 11th 2001 or the Ikeja Bomb blast of January 2002.

In the same vein, different people have different level of tolerance of risk. This is why the study of risk-either on individual or corporate level is very vital.

2.0 OBJECTIVES

After studying this unit, you should be able to:

- Explain the potential risk to mankind.
- Differentiate between speculative risk and operational risk.
- Describe the relevance of risk management within corporate strategies.
- Explain the regulatory and advisory pressures on management.
- Explain the fundamental steps in the process of risk management.
- Describe the role and position of the risk manager within an organization.

3.0 MAIN CONTENT

3.1 Meaning of Risk

Risk has been described as a natural ingredient to any activity. No venture, no success; this could be recorded as no risk, no success either for an individual or organization.

The question now is what do we mean by risks?

To answer this question, there is need for us to note that different authors have defined risk in various ways. Williams Jr. and Heins (1985) had posited that, no one definition is “correct”. That is, the definition could be likened to the story of the seven blind men’s description of the elephant – all of which are correct and at the same time incorrect. The above might not be unconnected to the fact that risks exist whenever the future is unknown. More so, that the adverse effects of risk had challenged the survival of mankind on planet earth ever since time immemorial.

In this regard, we will like to look at the different views of some of the reputable authorities on the subject, as stated below.

1. “The term risk has a variety of meaning in business and everyday life. At its most general level, risk is used to describe any situation where there is uncertainty about what outcome will occur. Life is obviously very risky, even the short-term future is often highly uncertain. In probability and statistics, financial management, and investment management, risk is often used

in a more specific sense to indicate possible variability in outcomes around some expected value – Harrington, Nichaus (1999,p3)

2. Risk will be looked at from the viewpoint of whether an incident is likely to occur. It is also necessary to consider how often such an incident could happen and how damaging the incident would be if and when it occurred. - David Kaye (2001, p1/2)

3. RISK is the variation in the outcomes that could occur over a specified period in a given situation. If only one outcome is possible, the variation and hence the risk is 0. If many outcomes are possible, the risk is not 0. The greater the variation, the greater the risk. - Williams, Jr and Heins (1985, P6).

4. Risk, defined as uncertainty as to loss poses a problem to individuals in nearly every walk of life. Students, householders, business people, employees, travelers' investors, and farmers all must face risk and develop ways to handle it. If a cost or loss is certain to occur, it may be planned for in advance and treated as a definite, known expense. It is when there is uncertainty about the occurrence of a loss that risk becomes important problem. Greene and Triechman (1984, 3).The essence of the above descriptions is to assist us appreciate the importance of risk to our everyday existence. These descriptions been summed up in nutshells in the definitions below:

i Risk is variation in possible outcomes of an event based on chance. – orfman's Introduction to Risk Management &Insurance, 4th Edition.

ii Risk is uncertainty as to loss.– Greene & Trieschmann's, Risk & Insurance, 7th Edition.

iii Risk equals uncertainty. Risk has principally to do with the uncertainty of a loss.

– Mehr & Cammack's Principle of Insurance 3rd Edition.

iv Risk may be defined as the possibility that loss will be greater than is normal, expected, or usual. – Mehr & Hedges's Risks Management Concept & Application.

At this point, it is important to note that there are those who enjoy and use risk as well as those that are risk averse – they avoid risks! In between the two extremes that majority of people can be located.

3.2 Types of Risk

For the purpose of this course, we look at risk from these two types. That is, the speculative risk and operational risk.

Speculative Risk

These are risks where the outcomes could either be a loss, no loss or profit. For instance, if a company decides to invest its money in a project, the objective of using fund in the way is to make profit. But in reality, the outcome could either be a loss, a break-even or a profit.

Risks with such tendencies are classified as speculative risks. Examples of speculative risks are:

- Decision as to invest in a new project, the timing of such an investment
- Whether to enter a new market place or a new country (as in the developed countries' emerging market concept of Asia, etc.)

- A car maker deciding to replace a current model, the timing and level of investment needed, etc.

Operational Risk

These are risks that any organization faces in carrying out its daily activities. This occurs when something unplanned and unpleasant hit the organization causing losses – either to men or materials – in the organization. In an operational risk, the outcome is either a loss or no loss situation. Some textbooks refer to this type of risk as Pure Risks.

As a result of the unexpected nature of this kind of risks, organizations can prepare for losses following the occurrence of such risks, through insurance, contingency planning and other funding mechanisms. There is always the challenge to organization to recognize and manage the operational risks threatening their existence.

SELF ASSESSMENT EXERCISE 1

Differentiate between speculative risk and operational risk.

3.3 Relationship Between Risk and the Objectives of an Organization

The objective of an organization is to maximize its profit. This main objective has always been made difficult as a result of the impact of risk to the organization. For instance, if an organization suffers from an industrial accident which, let say, makes it pay out the sum of N50 Million in form of various compensation to the victims of such losses.

You will note that this will affect the overall result of the organization at the end of its financial year. Apart from the objective of profit maximization, a modern organization has alongside other objectives. The objective of an organization may be informal while at times, they are formal and documented in form of strategic plan.

These objectives are shared with the organization's 'stakeholders'. The 'stakeholders' have been defined by Kaye (2001) as people or organization, which could be affected by a risk incident occurring in the organization itself. As, he sees risk as having the potential to "threaten the operations, assets and other responsibilities of an organization". The identified 'stakeholders' by Kaye (2001) are:

1. Employees.

- Morale and pride. This often reflects the degree of the employees' interest in the success of an organization and has a direct link into the quality of work performed.
- A need for a job to sustain personal and family life and also selfesteem.
- A safe working environment

2. Suppliers

- Suppliers to the organization will depend on its survival to be able to deliver and receive payment for the goods or services contracted.
- Sometimes the loss of one or more large customers can destroy a supplier of goods and services.
- The organization, as supplier, can destroy customers who are further up the delivery chain.

3. Customers and Other Recipients of Service

- Most business customers are free to move to other organizations. They will do so if they lose confidence in either delivery or quality.
- Other, non-commercial, service suppliers may find that their relationships with their existing recipients will become difficult and even fail should confidence be lost.
- Sales teams will find it increasingly difficult to find new customers.
- Failure to deliver the contracted services with sufficient quality can lead to litigation for damages well beyond the value of the item in dispute.

4. Distributors

- Distributors are in effect wholesale customers. All the comments about customers therefore apply.
- Some distributors depend on few or even one source of supply (e.g. a distributor of a new motor vehicles). Failure of that one source of supply could damage that distributor on many different ways. It can even cause it to fail if an adequate replacement supplier is not found soon enough.

5. Regulators

- There are various regulators who, in many different ways, will take a continuing interest in the origination.
- Failure to satisfy the statutory and other requirement of these regulators can result in them imposing fines, restricting business or closing down the business altogether.
- The losses therefore can range from financial, reputational damage and even closure.

6. The Media

- The media has many firms:
- Local and international Newspapers
- Television and Radio
- Popular and Professional Magazines
- Increasingly, the Internet.
- These can be regarded as wholesale distributors of the reputation of an organization and its officials.
- If a publication is negative about an organization much damage can be done. This is so whether the story reflects the truth, only part of the truth, or even is factually incorrect.
- The impact therefore is of significance to all other stakeholders.

7. Private Investors

- Private, monetary, investors can range from family, partners, employees, associated companies and other investors in an organization often they can be exposed to devastating loss than stock market investors who have more opportunity to spread their investments, and therefore the risk across different companies and market.
- There are also ‘investors’ who have a non-monetary stake in the organization. They stake their professional and personal reputations alongside that of the organization. They too

can suffer loss alongside any damage to the organization itself. They can find it a very long and difficult process to rebuild this type of asset.

8. Banking Industry

- Banking and investor finance companies will maintain, throughout, an interest in the fortunes of those organizations to which they have provided money.
- If that money is perceived to be at greater risk due to an unexpected downturn in the strength of an organization, the cost of borrowing can increase significantly.
- If the financier believes there is sufficient cause for concern, the assets that are the security for that loan can be sold. The lender can have that power under the terms of the loan or mortgage agreement. Primarily the decision when to sell the mortgage assets will be based on the interests of the financier and not necessarily the longer-term interests of the organization and its other stakeholder.

9. Quoted Shareholders

- Quoted shareholders come to the organization through stock markets in various forms.
- Usually the investor has many choices beyond the subject organization and can switch funds away rapidly.
- Stock market sentiments however have many other influences (beyond the success of the individual quoted organization) and thus its behaviour becomes a risk in itself.
- Falling stock values can also increase the cost of borrowing capital. If leaders perceive that the relationship between total borrowings and the value of the company is narrowing they can demand higher interest rates and security.
- Single points of influence can affect shares widely. These influences include credit rating agencies such as Standard and Poor's, and investment analysts employed by the bigger brokers and merchant bankers.

10. The Environment

- Increasingly, there is public and statutory interest in the quality of the environment.
- It is a very wide subject not only covering pollution of the physical environment. Organizations may need to consider money laundering and insider dealing through to corporate manslaughter and other potential criminal acts.

And Others

- Individual organizations may have their own, different stakeholder pressure. One example would be a political organization with own dependencies to protect.
- Competitors too are a form of 'stakeholders'. If an organization is weakened by an unexpected damaging incident, there is usually a whole range of competitors who will see the incident as an opportunity for themselves.

SELF ASSESSMENT EXERCISE 2

Identify and explain organization's stakeholders

3.4 Organization Risk Exposure

The organization is exposed to risk, which could affect its people, its assets and / or other people as well as their assets.

People

The people are usually exposed to the risks of injury, sickness or death depending on the nature of activities carried out in the organization. For instance, for an employee of an asbestos manufacturing company, apart from the risk of injury, he or she could be exposed to asbestos related sickness such as lung cancer, etc. The people exposed to organization's risk are:

- Employees
- Visitors / Customers
- Third parties

Assets

The assets of the organization are also exposed to the risk of damage. Such assets are:

- Balance Sheet assets – such as money, building, equipment, vehicles etc.
- Off balance sheet assets – such as intellectual assets
- (Information and knowledge) reputation network of critical, suppliers, distribution system, customer base, etc.

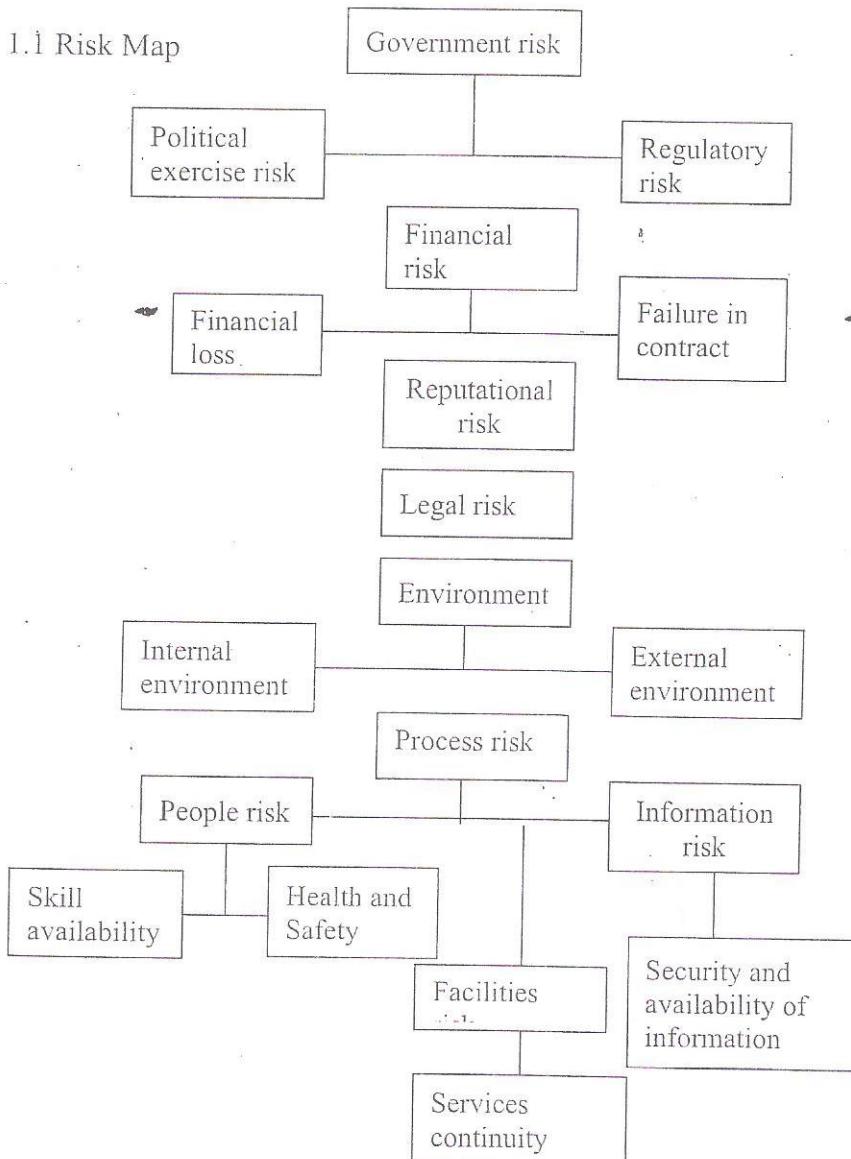
Liabilities

These are the legal liabilities, which the organization owes others as a result of wrongdoing. It could be as a result of injury to third party property.

Risk Map

The risk map describes how risks can be presented graphically. This assists the organization to have a picture of its risk exposures. An example of risk map is shown below.

Figure 1.1 Risk Map



Source (Kaye) Risk Management, P. 1-2

SELF ASSESSMENT EXERCISE 3

Explain what you understand by the term speculative risk?

4.0 CONCLUSION

In this unit you have learnt important issues that relate to risk in an organization and the different stakeholders in an organization.

5.0 SUMMARY

We have dealt with the meaning of risk, types of risks, relationship between risk and the objectives of an organization, etc. The unit that follows is a continuation of the analysis. Therefore, in the next study unit, we shall treat risk and uncertainty.

6.0 TUTOR - MARKED ASSIGNMENT

Identify six stakeholders to an organization and discuss their roles.

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UNIT 3 RISK AND UNCERTAINTY

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Risk and Uncertainty distinguished
 - 3.2 Subjective versus Objective Risk
 - 3.3 Subjective Risk and Attitude to Risk
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

Risk and Uncertainty are critical aspects of our lives. While some events of life involve losses, others may not. Some of these losses might be common and somewhat predictable; many others are shocking, unexpected events. Each involves risk or uncertainty. While the basic element of risk has been discussed in this Unit 2, our focus is to provide a further insight into risk and uncertainty. The discussion will additionally dwell on attitude to risk and uncertainty.

2.0 OBJECTIVES

After you have completed this unit, you should be able to:

- Explain the term uncertainty
- Distinguish between risk and uncertainty
- Differentiate between objective and subjective risks
- Discuss the different attitudes to risk

3.0 MAIN CONTENT

3.1 Risk and Uncertainty Distinguished

Even though no statistical treatment of risk is envisaged in this study, some basic facts from that approach seem necessary for proper understanding of the concepts under discussion. Indeed, it is true that the future cannot be known precisely by man. However, there are events or development of events that can be known up to a given point in time, past or present and which can be analyzed statistically in order to forecast what the future hold for the event(s).

Under condition of risk, a person or a decision maker is faced with a situation in which results of an action or decision are not totally known, but will probably fall within a possible range of outcomes. Here there could be more than one possible outcomes resulting from the selection of an option. The decision maker is assumed to know the probability of occurrence of each outcome. The decision maker's problem is to estimate, the mathematical probabilities of occurrence. Basically, some errors of estimate, forecast or prediction are bound to occur, this error being termed risk, implying the error of being wrong- in one's prediction. Happily enough, statisticians have a way of determining such errors and measuring them. Indeed, the decision maker can determine from past experience the objective probability and relative frequency of the

occurrence of various outcomes. Thus, measurements could be possible with the aid of past experience and record kept. Examples of measurable events are births, vehicular traffic, death, population structure, schools and school attendance, number of buildings in a town, etc. (Oluoma, 1999:10).

Under uncertainty condition, the decision maker has difficulty assigning probabilities to outcomes either because there is a lack of information or an absence of knowledge concerning what outcome can be expected. In other words, there are either two main possible outcomes or too many known facts or both. In this case, the decision maker cannot predict the outcome with any degree of confidence. In fact since the possible outcomes of the event under consideration and/or their probabilities are unknown, it is difficult to measure or forecast accurately. This situation is faced frequently by managers when entirely new products or services are being introduced. Other examples of non-measurable events are salvation in religion, state of mind, etc. In addition, unlike risk, uncertainty is a subjective phenomenon. The implication is that two or more individuals are unlikely to have identical views of the outcome of decisions taken under condition of uncertainty. Consequently, it is very difficult to develop universally acceptable techniques for dealing with uncertainty. In practice, a decision maker faced with uncertainty would attempt to generate a probability distribution of possible outcomes on the basis of his personal judgment of the situation. For instance, any predication as to which of two teams, hitherto unknown, will win a match is bound to be subject. People are bound to give their opinions according to their fancies of the team.

Risk concerns variations in possible outcomes in a situation. Uncertainty is often used as a synonym for risk, although when so used it usually refers to objective (measurable or quantified) uncertainty.

Economists and Statisticians use this concept when they measure variation in occurrences. On such measure of variation is called the standard deviation which helps predict expected variations from a norm.

Predictability of an expected probability actually occurring is increased as the number of events is increased as evident in the principle of large numbers. (Bickelhaupt, 1974:5).

Still within the realm of uncertainty, there is a dividing line between objective and subjective uncertainty. According to Bickelhaupt, subjective uncertainty which involves a feeling or state of mind as to expected results differs from the above concept of objective uncertainty.

Lack of knowledge as to the real facts, prejudices, unwarranted high hopes, or other factors can cause different predictions. Therefore, different subjective risks occur, and these often deviate from the underlying objective risk. This kind of uncertainty is not readily measurable and is not usually what is meant when the term risk is used.

In summary, risk is associated with measurability while uncertainty with non-measurability of the event(s) or the error(s) of forecast about future situation(s).

Measurability here should be addressed from two important angles:

- Knowledge of the possible outcomes of an event and their probabilities of occurrence; and

- Objectiveness of measurement

SELF ASSESSMENT EXERCISE 1

State the differences between risk and uncertainty

3.2 Subjective Versus Objective Risk

Trieschmann, Gustavson and Hoyt (2001: 5) draw a distinction between subjective and objective risks. According to them, subjective risk refers to the mental state of an individual who experiences doubt or worry as to the outcome of a given event. In addition to being subjective, a particular risk may also be either pure or speculative and either static or dynamic. Subjective risk is essentially the psychological uncertainty that arises from an individual's mental attitude of state of mind.

Objective risk differs from subjective risk primarily in the sense that it is more precisely observable and therefore measurable. In general, objective risk is the probable variation of actual from expected experience. This term is most often used in connection with pure static risks, although it can also be applied to the other types of uncertainties.

The concept of subjective risk is especially important because it provides a way to interpret the behaviour of individuals faced with seemingly identical situations yet arriving at different decision. For example, one person may be ultra conservative and tend always to take the "safe way" out, even in cases that may seem quite risk – free to other decision makers. Objective risk may actually be the same in two cases but may be viewed very differently by those examining this risk from their own perspectives. Thus, it is not enough to know only the degree of objective risk; the attitude towards risk of the person who will act on the basis of this knowledge must also be known.

SELF ASSESSMENT EXERCISE 2

State the differences between subjective and objective risk.

3.3 Subjective Risk and Attitude to Risk

Before going further into the intricate aspects of risk management it will be necessary to briefly highlight some basic features of risk and individual's reaction to risks situations which are fundamental ingredients in decision taking toward effective handling of risks.

It should be noted that although a particular type of event may be of such a nature that in principle it ought to be possible to calculate both the probability and the potential variation in particular outcomes, often defects in the quality of the data available to risk managers prevent the calculation of reliable objective estimates of future loss probabilities.

Two common problems are:

- insufficiently large samples (that is, the available details of past experience are based on only a small number of exposure units), and
- changes in risk factors that cast doubts on the usefulness of past experience as a guide to the future.

In such circumstances there is no alternative but to draw on one's experience and judgment to interpret loss trends to arrive at subjective probability estimates. Such estimates may differ

markedly from the underlying true probabilities, not least because the estimator's judgment may be coloured by his own attitude to uncertainty.

When risk cannot be measured objectively with a high degree of accuracy, so that individual judgment and attitudes enter into the process, then subjective risk will be present. Subjective risk has been defined as "the uncertainty of an event as seen or perceived by an individual".

Attitude to risk could be approached from three angles:

- a) risk averter,
- b) risk optimist/risk seeker
- c) risk neutral

To be risk averse implies that a person is willing to pay in excess of the expected return in exchange for some certainty about the future. To pay an insurance premium, for example, is to forgo wealth in exchange for the insurer's promise that covered losses will be paid. Some people refer to this as an exchange of a certain loss (the premium) for an uncertain loss. An important aspect of the exchange is that the premium is larger than the average or expected loss because insurer expenses and profit are included. A person willing only to pay the average loss as a premium would be considered risk neutral. Someone who accepts risk at less than the average loss, perhaps even paying to add risk such as through gambling is a risk seeker. (Pritchett, schmit et al, 1996. p. 4, 7) One person may be very cautious and averse to taking chances, whereas another may be highly optimistic regarding uncertain outcomes: the former (risk averter) is likely to arrive at higher loss probability estimates than the latter (risk optimist). Someone who is strongly averse to accepting even the smallest variation in outcomes from the expected may choose to insure, whereas a less risk adverse individual may be prepared to carry the risk himself. In fact, attitude to risk influences not only subjective estimates of probability but also risk handling decisions.

What causes one person to be more risk averse than another? This is a question best answered by psychologists, sociologists, or anthropologists. However, it is safe to say that family and societal influences, genetics, and religious / philosophical beliefs all play an important role. Somewhat less clear is the relationship between a Person's risk aversion and his or her uncertainty; a problem that is influenced by the imprecise way the terms "aversion" and "uncertainty" commonly are used. In some respects, uncertainty could be affected by aversion. For example, an individual might be so wary of risk in general that he/she would tend to discount his / her own judgment regarding a particular risk. In that respect, her/his own level of uncertainty regarding a particular risk might be driven higher by her / his aversion to risk. In other situations, it is possible to say that uncertainty influences aversion, in that a person consistently exposed to an environment of seemingly random and unpredictable events (say, a citizen of Sarajevo) might eventually develop a high level of aversion to risk. (Williams, Smith and Young, 1995: 7)

Some scholars have taken a different approach in relating to risk, risk aversion, and uncertainty to one another. For instance, William and Heins (1989) discuss risk as consisting of objective and subjective components. Objective risk refers to the measurable component of risk, while

subjective risk reflects an individual reaction to (attitude towards) risk. In this approach, uncertainty becomes an aspect of subjective risk.

Other views are possible and perhaps the best that can be said is that risk aversion and uncertainty are distinct concepts that are not fully independent of one another. (Williams, Smith and Young, 1995: 7)

SELF ASSESSMENT EXERCISE 3

Distinguish between a risk averter and a risk optimist.

4.0 CONCLUSION

Risk and uncertainty are two concepts that occupy the center stage of human and business activities. They can make or mar the future of any entity. What ever degree or level they assume at any circumstance and the response or attitude of the individual or business will determine the extent to which they can be taken to play negative or respectful role.

5.0 SUMMARY

You have learnt in this unit that risk and uncertainty are central in measuring organizational performance. We have equally discovered that attitude to risk is vital to determining the best part to take in resolving organizational problems. It is thus, trite to assert that a conscious effort in handling organizational risks must start with a proper synergy of risk and uncertainty and the adaptability of organizations to such business dynamics. In the next unit, we shall discuss the impact of risk and uncertainty

6.0 TUTOR - MARKED ASSIGNMENT

Distinguish between risk and uncertainty.

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UNIT 4 COMPETITION AND MARKETING PLANS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
- 3.1 Social Profitability
- 3.2 Margin and Ratio
- 3.3 Effects of Divergences
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 INTRODUCTION

Every firm is most concerned with its profitability. One of the most frequently used tools of financial ratio analysis is profitability ratios which are used to determine the company's bottom line and its return to its investors. Profitability measures are important to company managers and owners alike. If a small business has outside investors who have put their own money into the company, the primary owner certainly has to show profitability to those equity investors.

Profitability ratios show a company's overall efficiency and performance. We can divide profitability ratios into two types: margins and returns. Ratios that show margins represent the firm's ability to translate sales dollars into profits at various stages of measurement. Ratios that show returns represent the firm's ability to measure the overall efficiency of the firm in generating returns for its shareholders.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the meaning of profit
- discuss social profitability plans and how they are designed.

3.0 MAIN CONTENT

3.1 Social Profitability

The second row of the accounting matrix utilizes social prices, as indicated in Table 2.1. These valuations measure comparative advantage or efficiency in the agricultural commodity system. Efficient outcomes are achieved when an economy's resources are used in activities that create the highest levels of output and income. Social profits, H, are an efficiency measure because outputs, E, and inputs, F + G, are valued in prices that reflect scarcity values or social

opportunity costs. Social profits, like the private analogue, are the difference between revenues and costs, all measured in social prices-H = (E - F - G).

For outputs (E) and inputs (F) that are traded internationally, the appropriate social valuations are given by world prices-cif import prices for goods or services that are imported or fob export prices for exportables. World prices represent the government's choice to permit consumers and producers to import, export, or produce goods or services domestically; the social value of additional domestic output is thus the foreign exchange saved by reducing imports or earned by expanding exports (for each unit of production, the cif import or fob export price). Because of global output fluctuations or distorting policies abroad, the appropriate world prices might not be those that prevail during the base year chosen for the study. Instead, expected long-run values serve as social valuations for tradable outputs and inputs.

The services provided by domestic factors of production-labor, capital, and land-do not have world prices because the markets for these services are considered to be domestic. The social valuation of each factor service is found by estimation of the net income forgone because the factor is not employed in its best alternative use. This approach requires the commodity systems under analysis to be excluded from social factor price determination. For example, if land is planted to wheat, it cannot grow barley during the identical crop season; the social opportunity cost of the land for the wheat system is thus the net income lost because the land cannot produce barley. Similarly, the labor and capital used to produce wheat cannot simultaneously provide services elsewhere in agriculture or in other sectors of the economy. Their social opportunity costs are measured by the net income given up because alternative activities are deprived of the labor and capital services applied to wheat production.

The practice of social valuation of domestic factors begins with a distinction between mobile and fixed factors of production. Mobile factors, usually capital and labor, are factors that can move from agriculture to other sectors of the economy, such as industry, services, and energy. For mobile factors, prices are determined by aggregate supply and demand forces. Because alternative uses for these factors are available throughout the economy, the social values of capital and labor are determined at a national level, not solely within the agricultural sector. Actual wage rates for labor and rates of return to capital investment are therefore affected by a host of policies, some of which may distort factor prices directly. An enforced and binding minimum-wage law, for example, raises the market wage above what it would have been in the absence of policy and causes observed wages to be higher than the social opportunity cost of labor. But indirect effects can also be important. Distortions of output prices cause different activities to expand or contract, altering in turn the demand and prices of mobile domestic factors.

Fixed, or immobile, factors of production are the factors whose private or social opportunity costs are determined within a particular sector of the economy. The value of agricultural land, for

example, is usually determined only by the land's worth in growing alternative crops. Because land is immobile, its value is not directly affected by events in the industrial and service sectors of the economy. But the social opportunity cost of farmland is sometimes difficult to estimate. Within any agroclimatic zone, complete specialization in the most profitable crop is rarely observed. Instead, farmers prefer rotations or intercropping systems that reduce risks of income losses from price variability, yield losses, and pest and disease infestation. Therefore, the social opportunity cost of the land is not accurately approximated by the net profitability's of a single best alternative crop; instead, it is measured by some weighted average of the social profits accruing from the set of crops planted. Because the correct weights and social profits associated with each crop in the set are generally not known, it is convenient in assessing farming activities to reinterpret crop profits as rents to land and other fixed factors (for example, management and the ability to bear risk) per hectare of land used. This reinterpretation includes private (and social) returns to land as parts of D (and H). Profitability per hectare is then interpreted as the ability of a farming activity to cover its long-run variable costs, in either private or social prices or as a return to fixed factors such as land, management skill, and water resources.

SELF ASSESSMENT EXERCISE

In evaluating the outlook for profitability, list and discuss four items that you think are important.

3.2.0 Margin Ratios

Gross Profit Margin

The gross profit margin looks at cost of goods sold as a percentage of sales. This ratio looks at how well a company controls the cost of its inventory and the manufacturing of its products and subsequently pass on the costs to its customers. The larger the gross profit margin, the better for the company. The calculation is: Gross Profit/Net Sales = ____%. Both terms of the equation come from the company's income statement.

3.2.1 Operating Profit Margin

Operating profit is also known as EBIT and is found on the company's income statement. EBIT is earnings before interest and taxes. The operating profit margin looks at EBIT as a percentage of sales. The operating profit margin ratio is a measure of overall operating efficiency, incorporating all of the expenses of ordinary, daily business activity. The calculation is: EBIT/Net Sales = ____%. Both terms of the equation come from the company's income statement.

3.2.2 Net Profit Margin

When doing a simple profitability ratio analysis, net profit margin is the most often margin ratio used. The net profit margin shows how much of each sales dollar shows up as net income after all expenses are paid. For example, if the net profit margin is 5%, that means that 5 cents of every dollar is profit.

The net profit margin measures profitability after consideration of all expenses including taxes, interest, and depreciation. The calculation is: Net Income/Net Sales = ____%. Both terms of the equation come from the income statement.

3.2.3 Cash Flow Margin

The Cash Flow Margin ratio is an important ratio as it expresses the relationship between cash generated from operations and sales. The company needs cash to pay dividends, suppliers, service debt, and invest in new capital assets, so cash is just as important as profit to a business firm.

The Cash Flow Margin ratio measures the ability of a firm to translate sales into cash. The calculation is: Cash flow from operating cash flows/Net sales = ____%. The numerator of the equation comes from the firm's Statement of Cash Flows. The denominator comes from the Income Statement. The larger the percentage, the better.

3.2.4 Returns Ratios

Return on Assets (also called Return on Investment)

The Return on Assets ratio is an important profitability ratio because it measures the efficiency with which the company is managing its investment in assets and using them to generate profit. It measures the amount of profit earned relative to the firm's level of investment in total assets. The return on assets ratio is related to the asset management category of financial ratios.

The calculation for the return on assets ratio is: Net Income/Total Assets = ____%. Net Income is taken from the income statement and total assets is taken from the balance sheet. The higher the percentage, the better, because that means the company is doing a good job using its assets to generate sales.

3.2.5 Return on Equity

The Return on Equity ratio is perhaps the most important of all the financial ratios to investors in the company. It measures the return on the money the investors have put into the company. This is the ratio potential investors look at when deciding whether or not to invest in the company. The calculation is: Net Income/Stockholder's Equity = ____%. Net income comes from the income statement and stockholder's equity comes from the balance sheet. In general, the higher

the percentage, the better, with some exceptions, as it shows that the company is doing a good job using the investors' money.

3.2.6 Cash Return on Assets

The cash return on assets ratio is generally used only in more advanced profitability ratio analysis. It is used as a comparison to return on assets since it is a cash comparison to this ratio as return on assets is stated on an accrual basis. Cash is required for future investments. The calculation is: Cash flow from operating activities/Total Assets = ____%. The numerator is taken from the Statement of Cash Flows and the denominator from the balance sheet. The higher the percentage, the better.

3.2.7 Comparative Data

Financial ratio analysis is only a good method of financial analysis if there is comparative data available. The ratios should be compared to both historical data for the company and industry data.

3.3 Effects of Divergences

The second identity of the accounting matrix concerns the differences between private and social valuations of revenues, costs, and profits. For each entry in the matrix-measured vertically-any divergence between the observed private (actual market) price and the estimated social (efficiency) price must be explained by the effects of policy or by the existence of market failures. This critical relationship follows directly from the definition of social prices. Social prices correct for the effects of distorting policies-policies that lead to an inefficient use of resources. These policies often are introduced because decision-makers are willing to accept some inefficiencies (and thus lower total income) in order to further nonefficiency objectives, such as the redistribution of income or the improvement of domestic food security.

In this circumstance, assessing the tradeoffs between efficiency and nonefficiency objectives becomes a central part of policy analysis.

But not all policies distort the allocation of resources. Some policies are enacted expressly to improve efficiency by

Table 2.2: Expanded Policy Analysis Matrix

	Revenues	Costs		Profits
		Tradable Inputs	Domestic Factors	
Private Prices	A	B	C	D
Social Prices	E	F	G	G

Diverges and efficient policy	I	J	K	L
Effects of market failures	M	N	O	P
Effects of distorting policy	Q	R	S	T
Effects of efficient policy	U	V	W	X

Table Notes:

Private profits, D, equal A minus B minus C. Social profits, H, equal E minus F minus G. ³Output transfers, 1, equal A minus E; they also equal M plus Q plus U. Input transfers, J, equal B minus F; they also equal N plus R plus V. Factor transfers, K, equal C minus G; they also equal O plus S plus W. Net transfers, L, equal D minus H; they also equal I minus J minus K; and they equal P plus T plus X.

4.0 CONCLUSION

In this unit, we have discussed profitability plans. We have also discussed the social profitability and the *effects of divergences*. Apart from these, we have provided a check list for profitability ratio plan.

5.0 SUMMARY

We have discussed profitability plans and social profitability. We saw how profit ratio relate to each other. The framework for analysis presented discussed social profitability of an organisation's position in the industry.

60 TUTOR-MARKED ASSIGNMENTS

1. Discuss the five basic profit ratio.
2. Use matrix policy to analyse organization cost, revenue and profits.

7.0 REFERENCES/FURTHER READINGS

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UNIT 5 COST BENEFIT ANALYSIS

CONTENT

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Principles of CBA
 - 3.2 Challenges of CBA
 - 3.3 Benefits of CBA
 - 3.4 Decision Criteria for Project
- 4.0 Conclusion
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1.0 INTRODUCTION

COST BENEFIT ANALYSIS

Cost-Benefit Analysis (CBA) estimates and totals up the equivalent money value of the benefits and costs to the community of projects to establish whether they are worthwhile.

Cost-Benefit Analysis (CBA) estimates and totals up the equivalent money value of the benefits and costs to the community of projects to establish whether they are worthwhile. These projects may be dams and highways or can be training programs and health care systems.

The idea of this economic accounting originated with Jules Dupuit, a French engineer whose 1848 article is still worth reading. The British economist, Alfred Marshall, formulated some of the formal concepts that are at the foundation of CBA. But the practical development of CBA came as a result of the impetus provided by the Federal Navigation Act of 1936. This act required that the U.S. Corps of Engineers carry out projects for the improvement of the waterway system when the total benefits of a project to whomsoever they accrue exceed the costs of that project. Thus, the Corps of Engineers had created systematic methods for measuring such benefits and costs. The engineers of the Corps did this without much, if any, assistance from the economics profession. It wasn't until about twenty years later in the 1950's that economists tried to provide a rigorous, consistent set of methods for measuring benefits and costs and deciding

whether a project is worthwhile. Some technical issues of CBA have not been wholly resolved even now but the fundamental presented in the following are well established.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain impact of profitability and its usage in project analysis.
- identify the logistics behind private and social profitability.
- explain the policy analysis matrix.

3.0 MAIN CONTENT

3.1 Principles of Cost Benefit Analysis

One of the problems of CBA is that the computation of many components of benefits and costs is intuitively obvious but that there are others for which intuition fails to suggest methods of measurement. Therefore some basic principles are needed as a guide.

There Must Be a Common Unit of Measurement

In order to reach a conclusion as to the desirability of a project all aspects of the project, positive and negative, must be expressed in terms of a common unit; i.e., there must be a "bottom line." The most convenient common unit is money. This means that all benefits and costs of a project should be measured in terms of their equivalent money value. A program may provide benefits which are not directly expressed in terms of dollars but there is some amount of money the recipients of the benefits would consider just as good as the project's benefits. For example, a project may provide for the elderly in an area a free monthly visit to a doctor. The value of that benefit to an elderly recipient is the minimum amount of money that that recipient would take instead of the medical care. This could be less than the market value of the medical care provided. It is assumed that more esoteric benefits such as from preserving open space or historic sites have a finite equivalent money value to the public.

Not only do the benefits and costs of a project have to be expressed in terms of equivalent money value, but they have to be expressed in terms of dollars of a particular time. This is not just due to the differences in the value of dollars at different times because of inflation. A dollar available

five years from now is not as good as a dollar available now. This is because a dollar available now can be invested and earn interest for five years and would be worth more than a dollar in five years. If the interest rate is r then a dollar invested for t years will grow to be $(1+r)^t$. Therefore the amount of money that would have to be deposited now so that it would grow to be one dollar t years in the future is $(1+r)^{-t}$. This called the discounted value or present value of a dollar available t years in the future.

When the dollar value of benefits at some time in the future is multiplied by the discounted value of one dollar at that time in the future the result is discounted present value of that benefit of the project. The same thing applies to costs. The net benefit of the projects is just the sum of the present value of the benefits less the present value of the costs.

CBA Valuations Should Represent Consumers or Producers Valuations As Revealed by Their Actual Behavior

The valuation of benefits and costs should reflect preferences revealed by choices which have been made. For example, improvements in transportation frequently involve saving time. The question is how to measure the money value of that time saved. The value should not be merely what transportation planners think time should be worth or even what people say their time is worth. The value of time should be that which the public reveals their time is worth through choices involving tradeoffs between time and money. If people have a choice of parking close to their destination for a fee of 50 cents or parking farther away and spending 5 minutes more walking and they always choose to spend the money and save the time and effort then they have revealed that their time is more valuable to them than 10 cents per minute. If they were indifferent between the two choices they would have revealed that the value of their time to them was exactly 10 cents per minute.

3.2 Challenges of CBA

The most challenging part of CBA is finding past choices which reveal the tradeoffs and equivalencies in preferences. For example, the valuation of the benefit of cleaner air could be established by finding how much less people paid for housing in more polluted areas which otherwise was identical in characteristics and location to housing in less polluted areas.

Generally the value of cleaner air to people as revealed by the hard market choices seems to be less than their rhetorical valuation of clean air.

3.3 Benefits of CBA

Benefits Are Usually Measured by Market Choices

When consumers make purchases at market prices they reveal that the things they buy are at least as beneficial to them as the money they relinquish. Consumers will increase their consumption of any commodity up to the point where the benefit of an additional unit (marginal benefit) is equal to the marginal cost to them of that unit, the market price. Therefore for any consumer buying some of a commodity, the marginal benefit is equal to the market price. The marginal benefit will decline with the amount consumed just as the market price has to decline to get consumers to consume a greater quantity of the commodity. The relationship between the market price and the quantity consumed is called the demand schedule. Thus the demand schedule provides the information about marginal benefit that is needed to place a money value on an increase in consumption.

Some Measurements of Benefits Require the Valuation of Human Life

It is sometimes necessary in CBA to evaluate the benefit of saving human lives. There is considerable antipathy in the general public to the idea of placing a dollar value on human life. Economists recognize that it is impossible to fund every project which promises to save a human life and that some rational basis is needed to select which projects are approved and which are turned down. The controversy is defused when it is recognized that the benefit of such projects is in reducing the risk of death. There are many cases in which people voluntarily accept increased risks in return for higher pay, such as in the oil fields or mining, or for time savings in higher speed in automobile travel. These choices can be used to estimate the personal cost people place on increased risk and thus the value to them of reduced risk. This computation is equivalent to placing an economic value on the expected number of lives saved.

The Analysis of a Project Should Involve a With Versus Without Comparison

The impact of a project is the difference between what the situation in the study area would be with and without the project. This means that when a project is being evaluated the analysis must estimate not only what the situation would be with the project but also what it would be without the project. For example, in determining the impact of a fixed guideway rapid transit system such as the Bay Area Rapid Transit (BART) in the San Francisco Bay Area the number of rides that would have been taken on an expansion of the bus system should be deducted from the rides provided by BART and likewise the additional costs of such an expanded bus system would be deducted from the costs of BART. In other words, the alternative to the project must be explicitly specified and considered in the evaluation of the project. Note that the with-and-without comparison is not the same as a before-and-after comparison.

Another example shows the importance of considering the impacts of a project and a with-and-without comparison. Suppose an irrigation project proposes to increase cotton production in Arizona. If the United States Department of Agriculture limits the cotton production in the U.S. by a system of quotas then expanded cotton production in Arizona might be offset by a reduction in the cotton production quota for Mississippi. Thus the impact of the project on cotton production in the U.S. might be zero rather than being the amount of cotton produced by the project.

Cost Benefit Analysis Involves a Particular Study Area

The impacts of a project are defined for a particular study area, be it a city, region, state, nation or the world. In the above example concerning cotton the impact of the project might be zero for the nation but still be a positive amount for Arizona.

The nature of the study area is usually specified by the organization sponsoring the analysis. Many effects of a project may "net out" over one study area but not over a smaller one. The

specification of the study area may be arbitrary but it may significantly affect the conclusions of the analysis.

Double Counting of Benefits or Costs Must be Avoided

Sometimes an impact of a project can be measured in two or more ways. For example, when an improved highway reduces travel time and the risk of injury the value of property in areas served by the highway will be enhanced. The increase in property values due to the project is a very good way, at least in principle, to measure the benefits of a project. But if the increased property values are included then it is unnecessary to include the value of the time and lives saved by the improvement in the highway. The property value went up because of the benefits of the time saving and the reduced risks. To include both the increase in property values and the time saving and risk reduction would involve double counting.

Decision Criteria for Projects

If the discounted present value of the benefits exceeds the discounted present value of the costs then the project is worthwhile. This is equivalent to the condition that the net benefit must be positive. Another equivalent condition is that the ratio of the present value of the benefits to the present value of the costs must be greater than one.

If there are more than one mutually exclusive project that have positive net present value then there has to be further analysis. From the set of mutually exclusive projects the one that should be selected is the one with the highest net present value.

If the funds required for carrying out all of the projects with positive net present value are less than the funds available this means the discount rate used in computing the present values is too low and does not reflect the true cost of capital. The present values must be recomputed using a higher discount rate. It may take some trial and error to find a discount rate such that the funds required for the projects with a positive net present value is no more than the funds available. Sometimes as an alternative to this procedure people try to select the best projects on the basis of

some measure of goodness such as the internal rate of return or the benefit/cost ratio. This is not valid for several reasons.

Introduction of Project Decision Criteria's

NPV, IRR, PV etc.

SELF-ASSESSMENT EXERCISE

- 1)** What are the challenges of CBA
- 2)** Discuss the principles of CBA

4.0 CONCLUSION

A cost benefit analysis is done to determine how well, or how poorly, a planned action will turn out. Although a cost benefit analysis can be used for almost anything, it is most commonly done on financial questions. Since the cost benefit analysis relies on the addition of positive factors and the subtraction of negative ones to determine a net result, it is also known as running the numbers.

5.0 SUMMARY

This unit focuses on CBA with core objectives on the usage of CBA in project analysis. Further explanation based on challenges and benefits of CBA with criteria for project selection. The impacts of a project are defined for a particular study area was considered .A cost benefit analysis is done to determine how well, or how poorly, a planned action will turn out. Although a cost benefit analysis can be used for almost anything, it is most commonly done on financial questions.

6.0 TUTOR-MARKED ASSIGNMENT

Review the articles that surround CBA.

7.0 REFERENCES/FURTHER READING

"Albert Humphrey The "Father" of TAM". TAM UK.Retrieved 2012-06-03.

See for instance: Mehta, S. (2000) Marketing Strategy

