Government of Samoa

MANUAL ON PROJECT PLANNING AND PROGRAMMING: 2009 EDITION

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Preface

In 1998, the Cabinet Development Committee (CDC) endorsed the *Manual on Project Planning and Programming* as the basis for ensuring that Government ministries and agencies adopted a common approach to project planning and programming, and to the presentation of project and programme proposals. The manual also identified the roles and responsibilities of agencies involved in various stages of the project cycle, and provided guidelines on how project planning is integrated into the budget cycle. The ultimate aim was to promote an efficient use of scarce resources in achieving national development objectives presented in the *Strategy for the Development of Samoa*.

In the eleven years since the manual was introduced, there has been a major restructuring of government (2003), and various modifications to the administrative procedures followed in the project cycle have been made, particularly in regard to project appraisal. This update revises the original manual to reflect these changes.

The 2009 update maintains a focus on the following components of project planning and programming:

- project identification
- project formulation
- project appraisal
- project implementation monitoring
- project evaluation

The Manual also specifically refers to the responsibility of the various ministries and agencies in project planning and programming.

The aim of the manual is to provide general “hands-on” guidance on project planning and programming. Applications of the guidelines must in practice take into account the specific and different characteristics of each sector.

It is suggested that the 2009 Manual should be consulted frequently as a guide to project analysts and planners in all government agencies.

Abbreviations

ACC	Aid Co-ordination Committee
ADB	Asian Development Bank
BCR	Benefit, Cost Ratio
BD	Budget Division
BPC	Budget and Planning Committee
CDC	Cabinet Development Committee
CF	Conversion Factor
DCF	Discounted Cash flow
EA	Executing Agency
EIA	Environmental Impact Assessment
EPPD	Economic Policy and Planning Division
EU	European Union
BD	Finance Division of the MOF
IA	Implementing Agency
IRR	Internal Rate of Return
LM	Line Ministry/Agency
MFA	Ministry of Foreign Affairs
MOF	Ministry of Finance
NPV	Net Present Value
PCC	Project Co-ordinating Committee
PM	Project Manager
PP	Project Proposal
PPP	Project Planning and Programming
PSC	Public Service Commission
SAT	Samoan tala
SDS	Strategy for the Development of Samoa
SOE	State Owned Enterprises
SOEMD	State-Owned Enterprise Division
TA	Technical Assistance
TB	Tender Board
TOR	Terms of Reference

1.0 Introduction

The successful implementation and ongoing operation and management of projects are critical components in the development process. The task of identifying, preparing and implementing sound projects must be thought out carefully. If projects are not well planned from the inception and selection stage, the development process and the sustainability of economic growth will be affected.

Furthermore, it is important to institutionalise the roles and the responsibilities of the various agencies within the Government which are involved in the management of the related stages of the project cycle. This Manual introduces all phases of the project cycle, addressing Project Planning and Programming (PPP) with the following scope:

- project identification
- project formulation
- project appraisal
- project implementation monitoring
- project evaluation

It is the aim of the Manual to provide common PPP guidelines for the related stages of the project cycle. This will facilitate a uniform approach and presentation of PPP throughout the various ministries and agencies of the Government of Samoa and improve the consistency of the quality of PPP throughout these ministries and agencies. In this context, the Manual facilitates an organised planning system to utilise scarce resources to achieve the development objectives of the Government.

Furthermore, the Manual identifies the roles and responsibilities of the individual ministries and agencies involved in PPP. This will facilitate a clear allocation of responsibility and the use of resources.

Although every effort has been made to provide “hands-on” guidance on project planning and programming, the different characteristics of each sector are far too diverse to allow a simple mechanical approach to be adopted. Project planners and analysts should bear this in mind when applying the guidelines to the related sectors.

2.0 Framework for Project Planning and Programming

This chapter provides an overview of the contents of the manual. It covers the concept of a development project, the project cycle, the procedures for project submission, the public sector investment programme, and the institutional framework that defines the roles and responsibilities of Government agencies and committees.

2.1 The Concept of a Development Program/Project

The term "development program" is defined within the following context:

- it is a separate identity which can be distinguished from other programmes or activities
- it has broad and long term development objective(s)
- it operates on the basis of annual/multi-annual budgets
- it has a number of interrelated activities/projects which collectively are designed to reach the broader programme objective(s)

The term "development project" is defined within the following context:

- it is a separate identity which can be clearly distinguished from other projects or activities.
- it has clearly defined development objectives and identifiable costs and benefits
- it has a defined and limited implementation period
- it is a complete project i.e. it incorporates all the components needed to obtain the project benefits and achieve the stated development objectives
- there is a clear allocation of responsibility for implementation and the use of resources

The above definitions of a programme and a project will facilitate the application of an organised programme/project planning system in the use of scarce resources. This will help to maximise the achievement of the development objectives through programme/project identification, formulation, appraisal and monitoring. It will also assist in the evaluation of programmes and projects.

In order to focus attention on programmes/projects which are important for the economy and the development process, only programmes/projects above a certain total cost will be required to follow the procedures outlined in this Manual on PPP. For this purpose a programme/project cut-off size of SAT$100,000 has been proposed[1]. Although programmes/projects below this cut-off level will in principle have to follow the same PPP steps, the scrutiny of applications will be less detailed.

It is important that any programme/project be identified on the basis of established national and sectoral policies and strategies, as presented in the *Strategy for the Development of Samoa* (SDS) and specific sector plans.[2]

The following can be noted:

1 This cut-off level applies to the initial capital cost requirement or an annual recurrent cost requirement.

2 Cf. *Sector Planning Manual for Samoa: 2009 Edition*.

- clearly defined sectoral policies and strategies are essential components for the identification of better and more relevant projects. It is often very difficult to justify a project in the absence of an overall sector or sub-sector plan.

- the planning process is not just a one way process. In most cases, the policies percolate down into strategies which in turn are translated into programmes and projects. In this process it is important to design feedback mechanisms to allow for policies to be reviewed and if necessary changed as a result of detailed project planning and implementation.

In the subsequent text, a programme/project will be synonymous and will be referred to as a project. Projects may be capital investment projects, technical assistance projects or human resource development projects.

2.2 The Project Cycle

Consistent progress of the development process depends, among other things, on the implementation of an inter-related series of development projects. A thorough understanding of the role, procedures and methods of the PPP concept is therefore essential for those responsible for planning, implementing and managing development projects. To clarify the procedures, methods and alternatives relating to the planning and management of projects, it is necessary to have a framework of the elements involved in project planning.

A project has (i) an objective or goal to achieve, (ii) an investment of resources for future benefits, (iii) a definite time limit and (iv) a specific physical boundary. Projects having such characteristics undergo several stages, or phases of activities, which take place between project conception and project completion. The stages or phases constitute a specific sequence of activities which is cyclical in nature and is referred to as the project cycle.

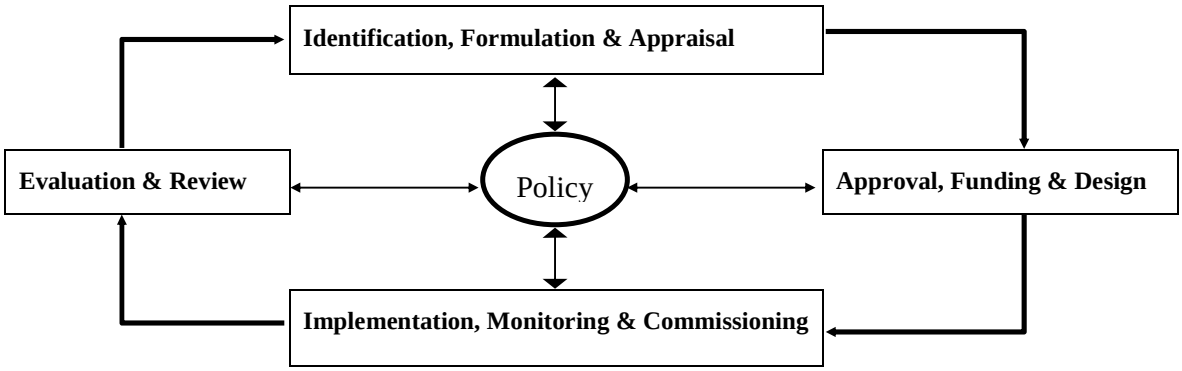
As all the phases of the project cycle are consecutive and interrelated activities, the framework adopted is based on the concept of the Integrated Project Planning Cycle (IPPC). The IPPC is a conceptual tool which includes all the elements that constitute the life of a development project from its conception to evaluation after completion. The IPPC has been adopted to illustrate the steps and procedures of PPP. Figure 2.1 shows the IPPC divided into four major phases as follows:

Phase I - Identification, formulation and appraisal
Phase II - Approval, funding and detailed design
Phase III - Implementation, monitoring and commissioning
Phase IV - Evaluation and review

Although a project will normally emanate from the national policy framework and the related sectoral development strategy, the process of project implementation is in the hands of the project management. It is therefore essential to have a two-way communication system between the policy decision makers and the project management. This is achieved through the establishment of a Project Co-ordinating Committee (PCC) which must be established to ensure that the outcome of the project is in line with the related Government policies and strategies. This is illustrated by the

two way information and authority flow in Figure 2.1 and ensures that all phases involve detailed consultations among all parties concerned.

Figure 2.1: Integrated Project Planning Cycle: 4 Phases



2.3 Project Submission

Following the nature of the project cycle, projects will be identified and formulated into Project Proposals (PPs) by line ministries/agencies on the basis of national policies and sectoral strategies. The PP is to be formulated according to guidelines shown in Annex 2.1. Once prepared, the PP is to be forwarded to the technical arm of CDC Secretariat (EPPD).

Where line ministries/agencies wish to use consultancy services in project formulation and/or other project planning tasks but do not have the funds for this purpose, they may submit a funding request as a project proposal. The TOR of the proposed consultancy should be prepared by the concerned line ministry/agency and attached to the request, using the guidelines for drafting the TOR for consulting services that are given in Appendix 1.

The finalisation of the TOR should be carried out in consultation with EPPD. The role of EPPD in this regard would be twofold: (i) to ensure that the TOR have been prepared in line with national objectives and priorities.; and (ii) to ensure that the TOR does not contain elements of conflict of interest.

EPPD is to administer PPs as follows:

i) undertake a project appraisal of the PP for projects above a total cost of SAT$100,000, in the process requesting comments from MOF's BPC, SOEMD and Aid Coordination and Loans Management Division;[1]
ii) submit the PP to the Sub-Committee of ACC for appraisal for projects below a total cost of SAT$100,000 .

The project appraisal format is shown in Annex 2.2b.

Projects appraised favourably by EPPD are to be forwarded to CDC for approval, and then to ACC if foreign funding is required. Projects appraised by the Sub-Committee

1 PPs may be returned to the concerned line ministry/agency if more information is required.

of ACC are to be submitted to PBC if local funding is required, before they are forwarded to ACC for funding. If the Sub-Committee of ACC feels that a specific project needs to follow the full PPP procedures, the relevant PP is to be passed on to EPPD for processing.

When the foreign and domestic funding requirements of a project have been clarified and when project implementation starts, the project will be included in the annual budget preparation as a ministry output/sub-output. Provisions may need to be made for funded projects to enter the planning and budget cycle at any time during the budget year. A project under implementation with its forecast annual domestic and foreign funding requirements will remain as a departmental output/sub-output in the budget cycle until the project has been commissioned. This will ensure disbursement of funds as required during project implementation.

The process of project submission and further steps in the PPP process are summarised in Figure 2.2.

2.4 Public Sector Investment Programme

Ongoing projects and a pipeline of new project proposals collectively constitute the three-year rolling Public Sector Investment Programme (PSIP). This is prepared by EPPD in close consultation with line ministries/agencies.

The preparation of an annually-updated PSIP is important for four reasons:

i) it will provide information on Government's priority sectors and projects for donor consultations;
ii) it will provide an overview of ongoing public sector investments for implementation in a three year perspective;
iii) it will provide an overview and a schedule of public sector pipeline investments in a three year perspective; and
iv) it will enable the Government to obtain a balanced level of capital investments throughout the plan period for forward budgetary planning of Government's financial resources.

The scheduling of ongoing projects is based on the up-dating of the latest Progress Reports submitted by the Executing Agencies. The scheduling of new projects is based on the following criteria of prioritising and scheduling projects for implementation:

i) project implementation policies and strategies outlined in the SDS and other Government policy statements;
ii) the tentative financial and economic returns of individual projects;
iii) the opening up of immediate development constraints and bottlenecks;
iv) availability of funds from both domestic and external sources taking account of the need to restrain public indebtedness; and
v) the absorption capacity of the economy and the machinery of the Government to implement and manage new projects.

It should be noted that the tentative financial and economic returns of individual projects (item ii) together with the priority sectors of the Government will be important considerations in the ranking and selection of projects for implementation.

The draft pipeline of projects is to be provided to ACC for information before submission to CDC for consideration. Once the draft is amended/endorsed by the CDC, it will be used as an indicative planning document in Government's interaction with the donor community. This process is to be managed by MOF. The allocation of domestic funds (as appropriate) is to be made through BPC. The allocation of external funds is to be made through the system of aid co-ordination and donor consultations. The overall process of funds allocation is to be co-ordinated through the ACC.

2.5 Institutional Responsibilities and Procedures

The main institutions and committees and their responsibilities in the project cycle are as follows:

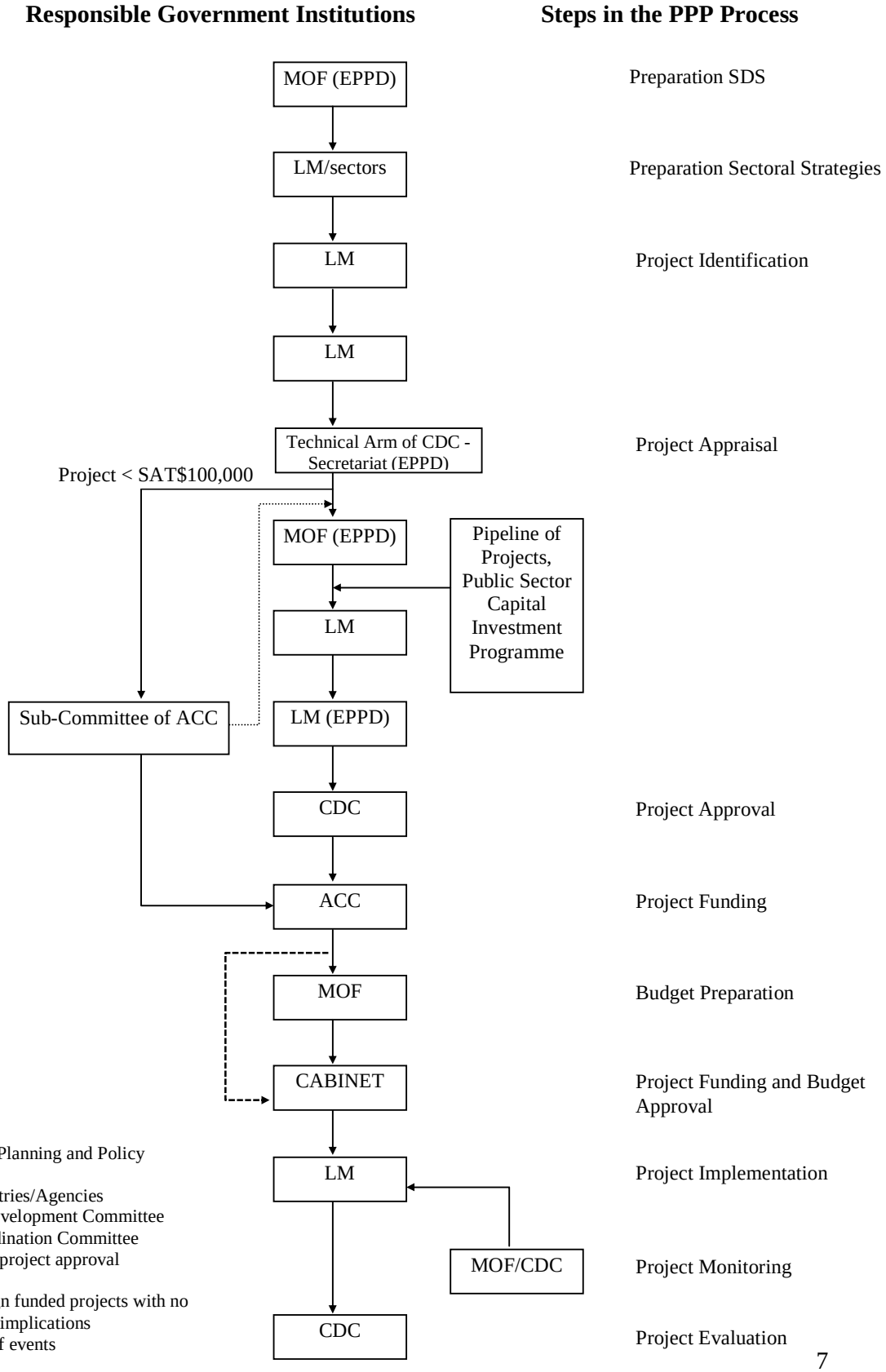
- CDC has the overall project approval and monitoring responsibility
- line ministries/agencies are responsible for the preparation of their respective sector strategies, project identification, project formulation, project design and project implementation
- MOF is responsible for the preparation of the SDS, project appraisal and project monitoring.
- MOF is responsible for donor consultations and the subsequent negotiations with donors providing grant aid and loans to Samoa
- MOF is responsible for the allocation of both foreign and domestic financial resources for project implementation.
- PCC has a supervisory role *vis a vis* the line ministries/agencies during project implementation.

2.6 Standardised PPP Documentation

In order to streamline and standardise PPP documentation, formats for Project Proposals, Project Appraisal Reports and Project Progress Reports have been approved by CDC. These various formats are presented together in Annexes to this chapter and chapter 5 in the case of Project Progress Reports.

With the application of these formats and the Manual on PPP, there will be a common focus and understanding and approach to PPP throughout the Government.

Figure 2.2 Diagrammatic Presentation of Project Submission and Further Steps in the PPP Process



Annex 2.1a Project Proposal

CDC Paper No.

Project Proposal for Project: ( ) submitted by (Agency) for <u>Cabinet Development Committee</u>

The Project Proposal (PP) is to be formulated by the line ministry/agency that has identified the project idea. A PP should be prepared for each project idea, highlighting the constraints, the objectives, the compatibility with SDS and related sector plan, and the project achievements with conceptional design parameters for the project to reach its objective(s) in a sustainable manner. A feasibility study should follow the format of the PP (Annex 2.1b). Upon completion, the PP is to be forwarded to the technical arm of the CDC Secretariat (EPPD) for appraisal. Upon completion of the appraisal, the concerned line ministry/agency will be informed accordingly of possible adjustments and clarifications before the final version of the PP together with the project appraisal report (including a proposal on project funding) will be forwarded to the CDC for consideration.

The format of the Project Proposal to follow the outline given below

Annex 2.1b Project Proposal on Project: ( )

1. Sector

2. Project Objective(s)

- *The objective(s) of the proposal should be clearly stated.*

3. Executing Agency

4. Implementing Agency

5. Background

- *Background including location of the proposal outlining issues and development constraints to be addressed.*
- *Description and relationship of the proposal to SES, related sectoral policies and strategies and existing outputs (if applicable).*

6. Outputs and Benefits

Outputs and benefits to be quantified so that performance indicators can be identified and elaborated on using, inter alia, the following check list as appropriate

- *Physical production or output targets and quantifiable performance indicators*
- *Efficiency, productivity or improvements of services*
- *Natural resource utilisation*
- *Linkages with and effects on other sectors or existing outputs*
- *International trade and foreign exchange implications*
- *Human resources development implications*
- *Employment creation (or reduction)*
- *Linkage to Government or the private sector*
- *Rural, provincial or urban development implications*
- *Technology transfer implications*
- *Environmental impact(s)*
- *Social development implications*

7. Inputs

The stipulated inputs to be elaborated on using, inter alia, the following check list as appropriate:

- *Land*
- *Infrastructure*
- *Equipment and materials*
- *Construction and buildings*
- *Programme support*
- *Human resources and training*
- *Technical assistance*

8. Revenues and Costs

Revenues and costs to be elaborated on under the following headings:

- *Revenue generation or cost savings*

- *Capital costs broken down in local and foreign capital cost estimates*
- *Recurrent costs broken down in local and foreign recurrent costs*

9. Cost - Benefit Analysis

The cost-benefit analysis to be expressed in terms of

- *Financial IRR*
- *Economic IRR*

(if costs and benefits can not be described in financial and/or economic terms, benefits and costs to be elaborated on within the concept of project cost-effectiveness)

10. Project Implementation

Project implementation arrangements to be elaborated on under the following headings:

- *Responsibility of Implementing Agency*
- *Management and organisation of project implementation.*
- *Detailed implementation schedule/work-programme with Bar (Gantt) chart*
- *Project monitoring arrangements.*

11. Project Feasibility

Project feasibility to be elaborated on within the following framework:

- *Technical feasibility*
- *Market feasibility*
- *Management and operating organisation*
- *Environmental impact*
- *Financial returns*
- *Economic returns*

12. Project Sustainability

Project sustainability to be discussed within the following framework:

- *Policy support*
- *Environmental aspects*[1]
- *Socio/cultural aspects*
- *Institutional and management capacity*
- *Project viability*

13. Consultations with other Relevant Line Ministries / Agencies

List of consultations with other relevant line ministries attaching minutes of meetings.

14. Summary of Issues

15. Signature of Head Executing Agency

16. Date

1 separate Environmental Impact Assessment report prepared by Department of Lands and Environment to be attached

Annex 2.2a Project Appraisal Report on Project: ( )

1. **Sector**
2. **Executive Agency**
3. **Implementing Agency**
4. **Summary of Issues**
5. **Project Appraisal Summary**

The summary to be formatted as follows:

- **Background**

  The background of the project to be elaborated on within the following framework:

  ⇒ *Government/sectoral policy*
  ⇒ *Features of the sector*
  ⇒ *Beneficiaries and parties involved*
  ⇒ *Problems to be addressed*

- **Project Objectives and Strategy**

  The objectives and strategy of the project to be elaborated on within the following framework:

  ⇒ *Overall objectives*
  ⇒ *Project purpose*
  ⇒ *Results*
  ⇒ *Activities*

- **Project Costs**

  The project costs to be elaborated under the following headings:

  ⇒ *Capital Costs*
    * *Foreign*
    * *Local*
  ⇒ *Recurrent Costs*

- **Assumptions**

  The assumptions to be elaborated on within the following framework:

  ⇒ *Assumptions at different levels*
  ⇒ *Risks and flexibility*

- **Implementation**

  The implementation of the project to be elaborated on within the following framework:

  ⇒ *Physical and non-physical aspects*
  ⇒ *Organisation and implementation procedures*
  ⇒ *Timetable*
  ⇒ *Cost estimate expressed in capital and recurrent costs (foreign and local)*
  ⇒ *Special conditions e.g. measures taken by the Government*

- **Project Financial and Economic Features**

  The financial and economic features of the project to be elaborated on within the following framework:

  ⇒ *Financial rate of return*

⇒ *Economic rate of return*

- **Factors ensuring sustainability**

  The sustainability of the project to be elaborated on within the following framework:

  ⇒ *Policy support*
  ⇒ *Appropriate technology*
  ⇒ *Environmental protection*
  ⇒ *Socio-cultural aspects*
  ⇒ *Institutional and management capacity*
  ⇒ *Economic and financial analysis*

- **Monitoring and Evaluation**

  The monitoring and evaluation of the project to be elaborated on within the following framework:

  ⇒ *Monitoring indicators*
  ⇒ *Reviews/evaluations*

6. **Proposed Financing Structure**
   - *Project capital costs*
     ⇒ *Equity*
     ⇒ *Loans/grants*
   - *Project working capital*
7. **Proposed Funding Source and Conditions**
   - *Equity*
   - *Loans*
   - *Grants*
   - *Working Capital*
8. **Budgetary Implementations**

   Enclosed the comments of Treasury Planning and Budget Committee
9. **Consultations with other Departments / Agencies**
10. **Recommendations**

    EPPD's views and recommendations as a result of the appraisal
11. **Signature of AS/ EPPD**
12. **Date**

3.0 Project Identification and Formulation

This chapter discusses the first two steps in the project cycle — project identification and project formulation. These are the responsibility of the line ministry/agency. Once these two steps are completed, a Project Proposal is to be submitted for appraisal by EPPD (if total cost exceeds SAT$100,000) or the Sub-Committee of ACC (if total cost is below SAT$100,000).

3.1 Project Identification

The basic documents for the identification of projects in Samoa are:

- Strategy for the Development of Samoa (SDS)
- Government policy statements
- Sector plans

The task of identifying suitable projects is a crucial step in the process of project preparation, and is the responsibility of line ministries and agencies. This identification should be the outcome of a detailed analysis of sector opportunities and constraints affecting the achievement of sector objectives. Supplementary to this analysis, and within the framework of national and sectoral objectives and strategies, project ideas may result from the analysis of the following issues:

- identification of market demand or needs not met, and the most effective means by which to meet them
- identification of problems or constraints in the development process due to shortages of essential facilities, services, skilled human resources and other obstacles.
- identification of unused or under-utilised material or human resources which can be converted to more productive use or conversely, over-utilised natural resources which need to be preserved and restored
- identification of the need to supplement or complete previous/earlier investments that have taken place
- identification of initiatives, or opportunities associated with Government incentives, for local and joint-venture investments in productive enterprises or activities of local, private or public entrepreneurs who wish to take advantage of the opportunities they perceive
- identification of local political or social demands e.g. demands associated with economic growth that affect social or regional equalities
- identification of market potentials through the review of statistical data and available surveys concerning:
    - ⇒ products for which Samoa has a comparative advantage
    - ⇒ products which could substitute for imported goods
    - ⇒ products required by a growing domestic market
    - ⇒ products for which there are export market potentials
- political and strategic considerations.

Project ideas which emerge through this process of project identification are statements of how a certain problem can be overcome or a particular objective can be achieved.

Promising project ideas need to be refined further in an orderly manner and only the most suitable ones retained for further investigation.

During the project identification stage a number of projects are identified. Preliminary examination is conducted and only those ideas which are considered potentially viable are selected for the next step in the project cycle i.e. project formulation.

3.2 Project Formulation

The aim of project formulation is to choose the best possible design for a project by carefully examining the different ways in which project activities may be carried out, given available resources and development objectives. This examination is aimed at demonstrating the viability of a project as an efficient use of resources and in terms of the project being:

- Financially viable
- Economically viable
- Environmentally friendly
- Socially adaptable
- Politically acceptable

A variety of design components must be considered:

(i) Technical aspects — the concern here is with the quantity and quality of resources required and how they will be used (site, machinery, buildings, construction works etc.). This will provide the basis to estimate the required costs to implement the project (capital costs) and the recurrent costs (including working capital) required to operate the project in its operational mode;

(ii) Organisational and managerial aspects.—. the concern here is with the links between project administration and external agencies (e.g. donors), and with the ways in which the project will be implemented and controlled, including through information feedback to project managers;

(iii) Marketing/commercial aspects — the concern here is with arrangements for acquiring inputs for the project, and estimating market demand and revenue earned from marketing project outputs;

(iv) Financial aspects — the concern here is with the financial viability of the project, that is, how the net benefits (revenues less production costs) of the project relate to the capital cost requirements, and with budgetary needs and foreign exchange requirements;

(v) Economic aspects — the concern here is with whether the project is in the *national* interest. In an economic system with possible distortions in market prices, the financial analysis does not necessarily reflect the economic impact of the project on the economy as a whole. Economic analysis, through the application of “shadow prices”, helps to determine whether the proposed resources are being used efficiently from a national perspective;

(vi) Environmental aspects —there is also a need to assess the negative/positive effects a project may have on the environment. Environmental impact assessment studies, which may be required under the Planning and Urban Management Act 2004 are essential inputs in the economic analysis of the project if the long term environmental cost implications can be quantified. If the costs of the possible environmental impact can not be quantified, the scope and nature of the possible environmental implications should be highlighted in the project proposal;

(vii) Social/political aspects — the concern here is with the effect of the project on the distribution objectives of development, and with the political acceptability of the project. Distributional objectives include raising incomes for target groups, creating employment, and improving standards of living (reducing the mortality rate, increasing the literacy rate etc.).

Appendix 2 presents an extended discussion of approaches to assessing project feasibility with regards to technical, marketing, organisational/management and environmental aspects.

Chapter 4 provides a discussion of project appraisal techniques that may be used to assess financial and economic viability of a project; but in summary there are two approaches that are available: (i) If the costs and the benefits of a project can be measured in quantifiable terms, the viability of the project can be assessed through a cost-benefit analysis; (ii) If however the costs and the benefits of a project can not be quantified in reliable terms — which is the case for many projects in the health, education and social welfare sectors — the alternative approach is to ensure that individual projects are as "cost-effective" as possible through the application of a cost-effectiveness approach.

Chapter 5 presents a more detailed discussion of project management and implementation issues.

A technique that can be useful in project formulation is that of the **logical framework**, which summarises how the project is expected to work. The framework clearly identifies the project activities or inputs that will produce the project outputs. These outputs are expected to contribute to the achievement of the project's purpose or objective, which in turn will contribute to achieving the longer term goal. The logical framework also summarises performance targets, monitoring mechanisms and assumptions and risks, as shown in Table 3.1. During project implementation monitoring, information is collected to test whether assumptions are correct and whether linkages between inputs, outputs and project purpose are working as expected. Appendix 3 presents a more detailed discussion of the logical framework technique.

Upon completion of a project feasibility study, a Project Proposal — structured as outlined in Annex 2.1 — is forwarded to EPPD/Sub-Committee of ACC for appraisal. The following will be assessed:

- that the project has a sound development orientation and approach in line with the SDS and other Government policy statements

- that the identification of the project is in line and is consistent with the relevant sector plan
- that the fundamental assumptions relating to the project are valid
- that the project is financially self contained or that the financial implications (as appropriate) can be accommodated through future budget allocations
- that the project is environmentally sound and is expected to have a sustainable future

Table 3.1: Key Elements of the Logical Framework

Design Summary	**Performance Targets**	**Monitoring Mechanisms**	**Assumptions and Risks**
Goals			
Purpose			
Outputs			
Inputs			

Source: C. Saldanha and J. Whittle. 1998. *Using the Logical Framework for Sector Analysis and Project Design*. Manila: Asian Development Bank, p.28.

4.0 Project Appraisal

4.1 Overview

Project appraisal is the process of examining the attractiveness of a project from a market demand and from a technical, financial, economic, social and political view point before a project implementation decision can be made. The appraisal of a Project Proposal (PP) is the responsibility of EPPD before the PP is submitted to CDC for consideration. The format of the Project Appraisal Report is given in Annex 2.2.

The appraisal is basically concerned with establishing the realism of the project assumptions and the accuracy of the information presented in the PP. In line with this approach, a comprehensive project appraisal involves the analysis of not only the market demand and technical, financial and economic aspects of a project, but also an appraisal of the contribution of the project to the achievement of national and sectoral objectives and strategies. Furthermore, in executing the appraisal process, it is necessary to apply a high degree of common sense, particularly when assessing how the project design relates to, and is compatible with, socio-cultural issues.

The appraisal must assess whether the project is worthwhile, comparing it and its specific objectives with those of the sector and the nation as a whole. It should assess whether the design of the project is such that it will facilitate the achievement of the objectives and an efficient use of resources in an environmentally friendly and sustainable manner. A well designed and formulated project will be easy to appraise, implement, monitor and evaluate. In this respect an efficient project is characterised by converting inputs into outputs in a cost effective manner. There are three fundamental processes in a project which need to be assessed:

- Outputs : is there a requirement for the outputs of the project?
- Inputs : are the inputs likely to be available?
- Conversion : what is the most efficient way of converting inputs to outputs?

The merit of this approach is that it can be applied to all types of projects, e.g. schools have teachers and materials as inputs and students as outputs. Research projects have resources as inputs which if they are to be useful, should be converted into probable useful targeted outputs. Factories convert inputs into marketable outputs at the lowest possible cost. Agricultural projects consist of inputs of seed, labour and other materials to yield goods which are consumed or sold.

In view of the three fundamental processes in a project, the appraisal process should proceed with the project assessment in the following logical fashion:

The Objectives

The project should have clearly defined objectives. The principal purpose of establishing clear objectives is to avoid the inconsistency and contradictory objectives emerging from projects having been identified in isolation. By following the procedures adopted for project identification and project formulation (Chapter 3), the risk of implementing projects with inconsistent and contradictory objectives is minimal.

The Outputs

If the outputs are saleable products it is necessary to make a judgement as to the effective demand for the product(s). If the outputs are not saleable it will be necessary to assess whether there is a requirement for them and whether this would be justified on socio-economic grounds (this would normally entail a judgement of appropriate thoughts of the concerned community). While the principal question relates to the market or the demand for the product, it can be divided depending on the size and complexity of the project into the following questions:

- if the quantity added to the market is likely to be very significant, a proper market analysis would be required - if it is insignificant an intelligent judgement is all that is required
- if a different quality type product is being offered, a market research analysis would probably also be required
- since the timing of the output coming onto the market could be crucial, care would have to be taken to assess what the effect would be if the increase envisaged was of an immediate nature.

Inputs

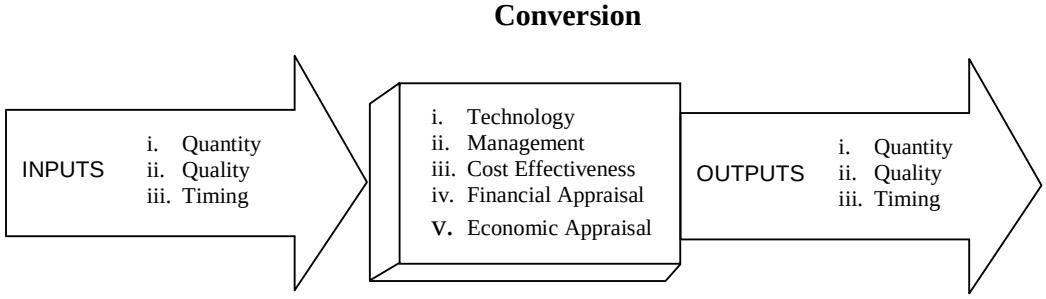
The principal question is whether inputs will be available. This depends on the size and complexity of the project. Three questions must be answered:

- will the scale of inputs required be available?
- will the quality be satisfactory?
- will inputs be available at the right time?

Conversion

The manner in which inputs are converted into outputs requires the following systematic assessment:

- is the proposed technology appropriate and is it technically feasible?.
- is the management required likely to be available and effective?
- is the institutional and policy framework appropriate?
- is this the most cost effective solution; what options have been considered?
- does it provide acceptable and the best financial and economic rate of returns ?
- are the possible environmental implications acceptable?



The virtue of this approach is that it enables the appraiser to proceed from simple judgement to full techno-economic appraisal in a logical sequence, which may expand with the nature and the scale of the project. In the majority of cases it would be quite possible to make a quick judgement as to whether the marketing requirements for the output, the input needs and the system proposed for converting inputs into outputs are reasonable. As the scale of the investment increases and it becomes technologically and managerially more complex, much greater care would have to be exercised.

Institutional Responsibilities

The EPPD is responsible for the preparation of the Project Appraisal Report. As EPPD does not always have the relevant in house technical expertise to deal with all aspects of the appraisal, EPPD may need to seek independent advice and judgement from relevant agencies and organisations in Samoa. If this advice/judgement is not available, EPPD would need to seek the relevant advice/judgement from external consultants as appropriate.

4.2 Appraisal Techniques

The objective of project appraisal is to determine whether or not the benefits expected from the project justify the investment and operational costs of implementing the project. If there are alternative projects and limited resources available for investment, project appraisal also permits a ranking of projects in order of priority.

Project appraisal essentially involves identifying the project's costs and benefits, valuing them, and comparing the costs and benefits using standard project appraisal techniques.

Cost-Benefit versus Cost-Effectiveness

Application of cost-benefit analysis is the generally acceptable tool for assessing the viability of development projects. This analysis examines the financial and economic costs and benefits of project proposals and calculates the net present value (NPV) and/or the internal rate of return (IRR) on the basis of both the financial and the economic net cash flows of projects. Such analysis requires reliable data for both the costs and benefits so that they can be translated into cash flow terms. This is not always easy as it may be difficult to quantify the financial/economic benefits in many projects, particularly in the health, education and social welfare sectors. It is also true in many infrastructure projects. As a consequence, the conclusions of applying the cost-benefit analysis to these projects may be biased by the subjective or arbitrary nature of the assumptions used. In other projects, while benefits may be quantifiable, the data used in the analysis may not be accurate and reliable.

In situations where it proves unreliable to carry out a cost-benefit analysis, the alternative is to attempt to ensure that individual projects are as "cost-effective" as possible. This approach is based on the simple principle that development projects achieve their designated objectives at the least possible cost in capital and/or recurrent terms. However, it is important to note that cost-effectiveness analysis can only provide a comparative assessment between projects aimed at achieving similar objectives or outputs. The analysis cannot make a choice between projects, for example between investing in a clinic, a school, a road or a wharf.

Cost-Benefit Analysis 1: Financial Analysis

Financial analysis of a project usually brings together the results of the market and technical analysis to provide a conclusion to the overall financial viability of the project. There are basically two main types of analyses:

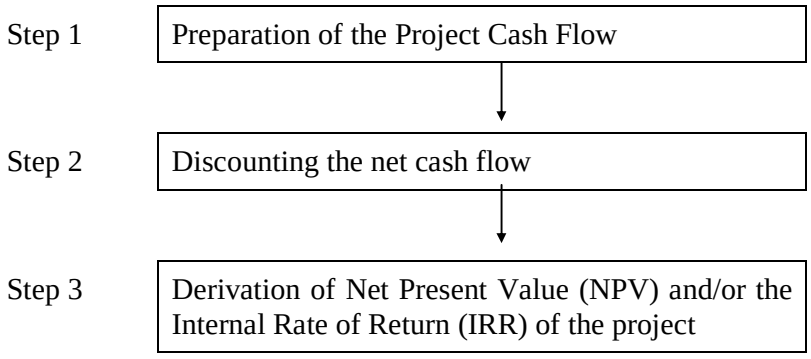
- analysis of projects with "measurable benefits" i.e. benefits that can be valued at market prices. The outputs of these projects, if sold in the market, provide the benefits of the project.
- analysis of projects with "non-measurable benefits" i.e. benefits that cannot be valued at market prices. These are mainly social infrastructure and security projects which are undertaken by the public sector to provide essential services and therefore cannot be valued at market prices.

In the case of projects with "measurable benefits" it is important to determine if the benefits produced by the project justify the cost. This analysis examines the opportunity cost of capital and determines if the project is a justifiable investment, especially to the individuals or agencies undertaking the investment. If it is not justifiable, then it will be financially prudent to consider alternative investments to maximise the use of capital and other resources.

In the case of projects with "non-measurable benefits" it is not possible to make a direct comparison between benefits and costs. The decision to implement such projects is usually determined through policy and strategy considerations. The financial analysis, in this case, examines the various alternatives in order to optimise the use of capital (i.e. cost-effectiveness analysis).

The Discounted Cash Flow Technique

The major analytical tool of financial analysis of projects is the Discounted Cash Flow (DCF) technique. This method involves basically three steps:



The essence of financial appraisal is the forecasting of all costs and benefits over the lifetime of the project. The appraisal is done at constant market prices i.e. there is no adjustment for expected inflation; only real changes in costs and prices are included. The format in which this is set out is often described as a 'Cash Flow Statement'.

The cash flow statement includes the costs shown in Figure 4.1 and excludes the costs shown in Figure 4.2.

Figure 4.1: Types of Costs in Cash Flow Statement

Type of Costs	*Items*
i) Capital Costs	• land • buildings (including site preparation and civil works) • plant and equipment (acquisition costs plus transportation) • vehicles • contingency allowances (physical and price)
ii) Operating Costs	• raw materials • costs • labour • utilities • fuel • transport • repairs and maintenance
iii) Pre-operating Expenses	• expenses incurred before commencement of operations e.g. pre-feasibility and feasibility studies, architect's and surveyor's fees, etc.
iv) Sunk Costs	• use of capital assets from other projects or abandoned projects
v) Working Capital	• stocks (of raw materials), spare parts and cash requirements to pay bills • there is no set formula for calculating working capital requirements. Each project has to be viewed individually depending on the likely lead time between expenditure and income flows • only the extra requirements over and above the amounts needed in the previous year are included • the value of working capital in the last year is a benefit to the project when it is liquidated

Figure 4.2: Items Excluded from Cash Flow Statement

Items	*Description*
i) Depreciation	• to avoid double counting as the cost of the asset is already accounted for in the capital costs
ii) Loan repayment (principal payments)	• a loan is taken out to purchase an asset and the value is already accounted for in the capital costs as in the above example
iii) Interest payment	• one of the reasons for deriving the cash flow is to determine the rate of interest the project can bear

The basis for benefit evaluation of a project is as shown in Figure 4.3.

Figure 4.3: Basis for Benefit Valuation

Basis	*Description*
i) Sales value	• if output is sold through normal commercial channels
ii) Imputed value (using market price of output)	• if output e.g. on the farm, is not sold but is consumed by the farm family
iii) Principle of 'with' and 'without' project	• when project is not completely new, but merely an addition to an existing activity • the entire output of the project cannot be treated as the benefit of the project • benefit of the project is the change (increase) in output as a result of the project

In addition to presenting the costs and benefits in a Cash Flow Statement, the items shown in Figure 4.4 have to be considered:

Figure 4.4: Other Considerations in a Cash Flow

Other Considerations in Cash Flow	*Description*
i) Salvage value	• value of fixed assets at the end of project when they are sold constitute a benefit to the project
ii) Life of project	• based on expected technical life of project's major investment components e.g. in an irrigation project this would be determined by the expected useful life of the upstream dam and irrigation canals • based on technological obsolescence e.g. industrial projects and projects with a high degree of mechanisation

Given the above information, the layout of the project cash flow is not difficult. An example of a project cash flow is given in Table 4.1, while Table 4.2 details how the project's working capital requirements are calculated.

Once the cash flow of benefits and costs for the project have been determined, it is necessary to ascertain the financial feasibility of the project by comparing the costs (which are normally incurred in the first few years of the project) with the benefits. The net benefits (or net cash flow) are derived by simply subtracting the total costs from total benefits for each year of the project.

However, in a project it is important to take into account not only the value of net benefits, but also the time period over which they occur. Benefits which accrue very late in the life of the project are not as valuable as benefits which accrue earlier on in the projects. This is because benefits which accrue early can be used for consumption or investment. One SAT$ earned in, say, year 10 of a project is not as valuable as one SAT$ earned in year 1. The latter could be profitably invested (or put into a savings account) in year 1 so that by year 10, it would be worth much more than the original one SAT$ (the exact worth would depend on the interest rate or earning power of the investment) while the one SAT$ earned in year 10 will have a face value of one SAT$ only.

Thus, benefits and costs that occur at different time periods cannot be just added to compare total costs and benefits before taking into account the time factor, since they have different real values. This is precisely what discounting a net cash flow does. It reduces the annual flows to a single common denominator - the equivalent value of those benefits and costs as if they had all occurred in the first year (year 0 or present time period) of the project.

The procedure to discount a net cash flow is straight forward once a discount rate is selected. The discount rate can be taken to reflect the opportunity cost of capital or cost of borrowing capital. The opportunity cost of capital is the next best alternative available in which to invest. Thus if an individual or agency is planning to invest in a particular project, the financial analysis of the project utilises the opportunity cost of capital as the discount rate to test if the return on investment of the project is higher than the next best alternative (which should reflect the same level of risk and uncertainty). The current opportunity cost of capital in Samoa has been stipulated to be 12%. This discount rate may be used in projects where the objective is to maximise the returns from the investment.

If the cost of capital is used as the discount rate, then the test is to determine if the return on investment of the project is higher than the cost of borrowing capital to finance the project. This is often used in most public projects where the objective is to provide essential services at affordable prices and not to maximise returns.

In Microsoft Office Excel, the statistical function NPV can be used to calculate NPVs for different rates. If a discount rate of 10% is used, the net cash flow shown in Table 4.1 has a NPV of SAT$1.52 million. If the higher discount rate of 15% is used, the NPV is lower at SAT$1.05 million. A positive NPV value indicates the project is viable: the return on the investment exceeds the discount rate. If NPV is negative, the project is not financially viable.

Table 4.1: Cash Flow Statement of Sample Project (SAT$ '000)

Year	0	1	2	3	4	5	6	7	8	9	10
PRODUCTION CAPACITY (%)		50	75	100	100	100	100	100	100	100	100
OUTFLOW											
INVESTMENT COSTS:											
Land	40.0										
Buildings	150.0										
Machinery and Equipment[1]	149.0										
Site Development	50.0										
Furniture, Fittings & Vehicle	45.0										
Pre-operating Expenses	52.5										
Contingency	31.4										
WORKING CAPITAL (1)		82.6	26.1	28.6	3.0	0.1	0.1	0.1	0.1	0.2	0.2
PRODUCTION COSTS											
Raw Materials		120.0	180.0	240.0	240.0	240.0	240.0	240.0	240.0	240.0	240.0
Labour		344.0	344.0	344.0	379.0	379.0	379.0	379.0	379.0	379.0	379.0
Water, Fuel & Power		8.4	9.6	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Repairs & Maintenance		9.0	9.9	10.9	12.0	13.1	14.3	15.9	17.5	19.3	21.2
Packaging		6.0	7.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
OTHER COSTS											
Office Administration & Insurance		28.2	29.4	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Promotion		50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Miscellaneous		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
(TOTAL OUTFLOW) TOTAL COSTS	517.9	658.2	666.2	733.3	743.8	742.0	743.2	744.8	746.4	748.3	750.2
INFLOW											
REVENUE (from sales)		600.0	900.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0
SALVAGE VALUE (land & equipment)											70.0
LIQUIDISATION OF WORKING CAPITAL											141.1
TOTAL INFLOW		600.0	900.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1411.1
NET CASH FLOW	-517.9	-58.2	233.8	466.7	456.2	458.0	456.8	455.2	453.6	451.7	660.9

NOTES: (1) Working capital requirements are obtained from Table 4. 6..2

1 investments which have an economic life less than the stipulated project life should be shown (in the relevant year, e.g., year 7) with a replacement value

Table 4.2: Working Capital Requirements of Sample Project (SAT$ '000)

Year	0	1	2	3	4	5	6	7	8	9	10
Cash in Hand (1)		47.96	53.34	58.72	61.70	61.80	61.90	62.00	62.10	62.30	62.50
Accounts Receivables (2)		10.00	18.75	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
Stock of Raw Materials (3)		10.00	15.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Stock of Finished Goods (4)		12.00	18.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
Work-in-Progress (5)		2.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Spare Parts Stock (6)		0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
TOTAL WORKING CAPITAL		82.56	108.69	137.32	140.30	140.40	140.50	140.60	140.70	140.90	141.10
INCREMENTAL WORKING CAPITAL REQUIREMENT		82.56	26.13	28.63	2.98	0.10	0.10	0.10	0.10	0.20	0.20

NOTES: (1) Cash in hand is estimated at one month of total operating costs.
(2) Accounts receivable is maintained at one month's local sales which is 20% for the 1st year. 25% for the 2nd year and 30% for the remaining years.
(3) Stock of raw materials is maintained at one month's requirement.
(4) Stock of finished goods is maintained at 20% of total sales.
(5) Work-in-progress is estimated at the value of one day's output (300 working days in a year.)
(6) Stock of spare parts is maintained at one month's requirement valued at SAT$20 per day.

The IRR is the discount rate at which NPV = 0. In the example in Table 4.1, the IRR is 46%. If this exceeds the discount rate set by EPPD as indicative of the opportunity cost of capital, the project is financially viable. That is, the project is earning a higher return that the expected average return in the economy as given by the discount rate. If the IRR is lower than the discount rate it means that the project, if carried out, would not earn as much as it could (or should) in other alternative projects, and therefore a closer look should be taken into the design of the project or other possible projects.

Both NPV and IRR generate the same reject/accept decision on a project, except in the case where a decision has to be made on mutually exclusive projects (i.e. deciding whether to plant bananas or taro in the same area, or building a large size versus a small size plant). In this case, only the NPV should be used to select the most favourable project.

Analysis of Risk and Uncertainty

The probability that a project will exactly earn the NPV or IRR that is obtained from the projected cash flow over the entire life of the project is very low. Regardless of how well the project has been designed and how much care has been taken in developing the cost and benefit estimates, they will probably change in the future because the future is uncertain.

It is therefore useful to analyse what would happen to the "earning capacity" of a project if important variables like output prices, unit prices of main inputs or investment costs were to change, or if project implementation were delayed. Such effects can be tested by using sensitivity analysis, which involves reworking the cash flow statement after assigning different values to key variables.

The sensitivity analysis should present a range of values for NPV/IRR corresponding to alternative sets of assumptions. If the range of the results is such that the project looks good, or bad, under a wide variety of alternative assumptions, then the decision to implement the project or not is a simple one. In many cases, however, the project will appear satisfactory under certain assumptions and bad under others, and the final decision on whether to go ahead or not will depend on the decision-maker's judgement as to the most likely outcome.

Where project risks are known to exist, but where they may not be quantifiable in terms of a sensitivity analysis, it is necessary to state in the analysis how it is intended to minimise the impact of the risks on the implementation of the project.

Finally, whilst the NPV and the IRR appear to give precise answers to the investment decision process, it must always be remembered that figures can be massaged to give whatever answer may be desired and in the real world nothing is ever as precise as might be wished. The project analyst must be on guard for over-optimistic project designs and forecasts and must, therefore, always test project assumptions in the sensitivity analysis and use common sense in the analytic process.

Cost-Benefit Analysis II: Economic Analysis

While financial analysis of investment viability focuses on returns (including financial payments) to individual project participants/sponsors (e.g. traders, partnerships,

companies, public corporations); economic analysis is concerned with the return to the whole economy of all the resources invested in the project. Two adjustments need to be made to the cash flow statement of the financial analysis to produce an economic analysis:

- identification of benefits and costs in terms of real resources
- valuation of identified items at their opportunity cost or true value to society (shadow pricing)

It must be emphasised that although the result of an economic analysis might support a decision to implement a project proposal, appropriate measures will have to be taken to ensure that financial requirements for the operation of the project are met, particularly in respect of possible recurrent costs allocations through the annual budget.

Identification of Benefits and Costs

Only input and output items involving real resource use are included in economic analysis. Financial or transfer payments (e.g. taxes, subsidies and customs duties) are excluded as they constitute payments or receipts from one sector of the economy to the other and do not constitute capacity to increase output. The differences between financial and economic analysis in this regard are summarised in Figures 4.5 and 4.6.

Valuation of Costs and Benefits

A private individual or enterprise examines an investment from the point of view of maximising financial gains. In doing so, the individual/enterprise uses current market prices to value inputs purchased and outputs sold during the life time of the investment. The internal rate of return (IRR) derived from such a cash flow is termed the "financial IRR". The acceptable "financial IRR" for private sector investments depends on the interest rate of loans/credits from commercial banks to which the individual/enterprise has access.

For public sector projects there is, in addition to the financial analysis, a need to carry out an analysis of the net benefits of the project to the economy as a whole. This latter is referred to as "economic analysis" in which market prices are adjusted to reflect their underlying economic values to society. The reason for this is that in many developing countries, current market prices are often unreliable indicators of the real worth of goods and services to the society. This is due to distortions in the markets where these products are bought and sold.

Some of the important factors contributing to such distortions are as follows:

i) taxes and subsidies on goods in systems of monopoly production;
ii) rigid control of the foreign exchange rate and supply of foreign currency by government (local currency is normally over-valued in relation to foreign currencies), particularly in situations of adverse balance of payments;
iii) protection of domestic markets through tariffs, quotas and trade taxes; and
iv) government legislation and bargaining power of the labour force leading to a labour wage structure which is out of line with the true opportunity cost of labour.

Figure 4.5: Flow of Financial and Economic Analyses

Financial Analysis	*Economic Analysis*
Capital costs (including financial payments e.g. taxes, and subsidies) valued at market prices	Capital costs (excluding financial payments) valued at shadow prices
Plus	*Plus*
Operating costs (including financial payments) valued at market prices	Operating costs (excluding financial payments) valued at shadow prices
Less	*Less*
Revenue (including financial receipts e.g. subsidies) valued at market prices	Revenue (excluding financial receipts) valued at shadow prices
Equals	*Equals*
Net Resources Flow at market prices	Net Resources Flow at shadow prices
(a) discount ↓ Financial Discounted Resources Flow (Financial NPV)	*(a)* discount ↓ Economic Discounted Resources Flow (Economic NPV)
or	or
(b) compute IRR ↓ Financial IRR	*(b)* compute IRR ↓ Economic IRR

Figure 4.6: Items in Financial and Economic Analysis

Items	*Financial Analysis*	*Economic Analysis*
Outputs	Included as financial benefits	Included as economic benefits
Machinery & Equipment	Included as financial costs	Included as economic costs
Land	Included as a financial cost	Included as an economic cost
Construction	Included as financial costs	Included as economic costs
Inputs	Included as financial costs	Included as economic costs
Labour	Included as current wage costs	Included as economic wage costs
Maintenance	Included as a financial cost	Included as an economic cost
Taxes (sales)	Included as financial costs	Excluded
Custom duties	Included as financial costs	Excluded
Subsidies	Included as financial benefits	Excluded
Transportation	Included as financial costs	Included as economic costs
Working capital	Included as a financial cost	Included as an economic cost

Market prices are adjusted to economic values/prices using what are known as accounting or "shadow" prices. Shadow prices are introduced to reflect the true economic cost of project inputs and outputs to the society in order to give emphasis to those projects which contribute to government's efforts to achieve national development objectives. Shadow prices of goods or services, also known as National Economic Parameters, are thus a measure of the real worth to the economy of a specific project.

The methodology adopted for economic analysis is based on what is known as the "Little and Mirrlees"[1] methodology, modified by Squire and van der Tak[2]. This methodology expresses all effects of a project at world market prices (also referred to as border prices). The implication of this approach is that the net benefits of a project

1 Project Appraisal and Planning for Developing Countries (1974)

2 Economic Analysis of Projects (1975)

are made equivalent to a stream of economic benefits and costs valued at international market prices.

The justification of this approach is twofold. Firstly, it provides a common basis for valuing benefits and costs of project outputs and inputs. Secondly, the use of world market prices is a measure of the opportunity cost to the economy of goods and services which can be bought and sold on the international market, referred to as "tradeables". This reflects the fact that if an economy is participating in world trade, then world market prices reflect the terms on which the economy can buy and sell goods and services on the world market. The rationale for this is that the world market price, especially for small countries like Samoa, is not affected by market imperfections within the country where the project is situated. World market prices are free of domestic market distortions and the international prices thus reflect the economic value of goods and services. These opportunities for trade should be taken into account when assessing the investment possibilities open to the economy.

However, in any economy there will be a significant number of commodities for which there will be no direct world market price to use as a measure of economic value. These commodities are termed "non-tradeables" The domestic market values of these goods and services will need to be converted to economic values.

The first step in converting financial market values to economic values is to divide the inputs and outputs of a project into traded and non-traded goods and services components. In addition, it is necessary to address project input factors such as land and labour, as well as the factors of discount rate and foreign exchange rate, as separate parameters in the economic analysis.

Traded Goods

The cost to the society of importing an input is the value of the resources used in getting the input to the project. There are two components of this cost. The first is the border price of the input known as the CIF price (cost, insurance and freight), which is simply the overseas purchase price or cost. This price is converted into domestic currency at the official exchange rate. The second cost component is the local cost of transporting the goods from the port of entry to the project site. This cost component needs to be shadow-priced as a non-traded service.

The benefit of a project output to society is the value of the new resources created. The first step in determining this value is to obtain the border price of the output. The border price of a traded output is its FOB price (free on board): assumed to be competitive on the world market. The true benefit to society is thus the border or FOB price converted at the official exchange rate if prices are denominated in foreign currency units.

Where a project produces import substitutes, a similar valuation procedure to that outlined above is to be followed. The benefit to the society is the saving of not having to import the goods, i.e., the CIF price plus possible transportation costs.

Non-Traded Goods

The most common non- traded goods and services include electricity, transportation, construction, labour and land. These can be both inputs and outputs to a project.

Labour and land are primary factors of production and their economic evaluation must be treated separately to that of others. One way of carrying out the economic valuation of non-traded goods is to break down the composition of each non-traded good into traded and non-traded components until the stage is reached where the only non-traded components are labour and land.

This method of shadow pricing is tedious and time consuming and consequently rarely followed. Instead non-traded goods are generally valued at economic prices by the use of conversion factors. A conversion factor is a short-cut method for converting prices of non-traded goods and services into border prices. At the most aggregated level a single conversion factor, the standard conversion factor (SCF) is used for this purpose. The SCF is derived by taking the ratio of all exports and imports at border prices to their value at domestic prices. Shadow prices of non-traded items are then obtained by multiplying the SCF with the market prices. This reduces the market prices to their real economic value.

The formula for the SCF is:

$$SCF = \frac{M + X}{(M + D) + (X - T)}$$

where M = value of imports at border prices
X = value of exports at border prices
D = total import duties
T = total export taxes

This approach of converting the financial market value of non-traded goods and services to economic values is considered to be the weakest link in the logical chain of establishing shadow prices. Many applied studies therefore treat non-traded goods and services very approximately.

Labour

Labour is a project input and like any other project input it must be valued at its opportunity cost, which may well differ from its market value. This opportunity cost or economic value of labour is equivalent to the output foregone elsewhere in the economy as a result of employing that labour in the project.

For economic project analysis in .Samoa, two broad categories of labour should be shadow priced:(i) unskilled labour and (ii) skilled labour. The valuation of unskilled labour begins with an assessment of the degree of unemployment and/or underemployment of such labour. Where extensive unemployment and /or underemployment exists, the practice adopted is to take a fraction of the current wage rate as the shadow price of unskilled labour. The arbitrary figure of 50% of current market wage rate or the minimum wage rate is often selected by many project analysts as an estimate of the opportunity cost of labour. The only underlying argument for the selection of this arbitrary figure is that for economies with high rates of underemployment the opportunity cost will generally be significantly less than the market wage rate.

In most instances skilled labour in developing countries is in short supply and would in all probability be fully employed without the project. As a result, wages paid to such personnel are generally taken as representing the true economic value to the society.

Land

In economic analysis land is valued at its opportunity cost, which is its net value of production foregone when the use of land is changed from its "without project use" to its "with project use".

In addressing this issue in the Samoan context, it is important to take account of the land ownership structure. Land in Samoa can be divided into categories: (i) customary land (the main bulk of land in Samoa); and (ii) freehold land, mainly held by Government and leased to the private sector.

Customary land due to its nature of ownership is very seldom sold or leased to an entity outside the ownership structure in the villages. Customary land thus has no foregone value as it does not enter the economic sector.

Freehold land is available as leased land. It is recommended that the opportunity cost of freehold land is valued as the direct value of production foregone when the use of this land is changed from its "without - project use" to its "project use".

Foreign Exchange

The foreign exchange value of the Samoan tala is linked to a basket of six foreign currencies representing the six major trading partners of Samoa. There is therefore no reason to believe that the SAT$ is significantly distorted, so that it would be fair to assume that the current official exchange rate of SAT$ represents the opportunity cost of the exchange rate in Samoa. This judgement is further strengthened by the relatively satisfactory balance of payments situation in Samoa. This situation is linked to the inflow of foreign aid on very concessional terms, as well as remittances (from Samoans working abroad) of convertible foreign currencies into Samoa and tourism receipts.

However, there is a substantial trade imbalance, and national development strategies highlight the need to both broaden and deepen the export base of the economy to reduce this imbalance. It is therefore recommended that a foreign exchange premium should be applied to the economic analysis. It is proposed that project outputs which would be exported should receive a foreign exchange premium of 10%, while for project inputs purchased from abroad an additional cost component of 10% should be imposed.

Discount Rate/Opportunity Cost of Capital

Once the stream of net economic benefits over the lifetime of a project has been determined there is a need to establish a measure of the worth of the project to the society. It is therefore necessary to establish a measure of the economic discount rate. To establish an appropriate discount rate, the two following considerations have been considered: (i) the opportunity cost of capital; (ii) the actual cost of capital.

The opportunity cost of capital is the rate of return on capital invested in a project which could be earned elsewhere in the economy. If the economic IRR of a project is

larger than this opportunity cost of capital, or if the NPV is positive after having discounted the net economic benefits to the present value, the project would be worth undertaking.

In practical terms, however, relevant literature is vague about how to determine the discount rate in terms of the opportunity cost of capital. Several authors advise that the rate should not fall below 4% to 5% as this can be earned with reasonable security in the international capital markets to which any country has access. Furthermore, a number of authors suggest that in most developing countries, the rate may be assumed to be somewhere between 8% and 15% and that a common choice could be 12%.

Samoa is a net borrower of capital for the funding of its development process. These borrowings, primarily from international financing agencies, are at an average rate of interest of 2%, i.e., on very concessional terms. In real terms, i.e. adjusting for domestic inflation, the actual cost of capital is negative when the funds are on-lent from Government to statutory bodies or other end users at a rate of about 8%. It is therefore proposed that 8% be used as the discount rate for economic analysis purposes.

Summary of National Economic Parameters for Samoa
It is recommended to apply the following National Economic Parameters in Samoa:

- **Traded Goods**: (i)the CIF price for imported goods converted to SAT$ at the current exchange rate; (ii) the FOB price for exported goods (see exchange rate below).

- **Non- Traded Goods:** SCF of 80% for local goods and services such as electricity, water, construction, transportation

- **Labour:** (i) 50% of the minimum wage rate for unskilled labour; (ii) the actual wage rate for skilled labour

- **Land:** a tentative figure for annual production foregone on freehold land is SAT$1000 per acre

- **Foreign Exchange:** the current foreign exchange rate, but project exported goods and services to be given a premium of 10% while for project imported goods and services a cost component of 10% to be added.

- **Discount rate:** an economic base rate of 8% (the sensitivity analysis to apply 6%, 10% and 14%).

4.3 Social Analysis

Economic analysis focuses on the allocative efficiency of the project, but does not take into account the distributional aspects of the project. It treats an additional SAT$ going to the higher income group as just as important as an additional SAT$ going to the lower income group. However, the ultimate aim of development projects is to improve the welfare of the people, with many projects having the lowest income groups as the primary target beneficiaries.

It is important to know not only that the resources are best used in the selected project but also that the income generated is in line with the income distribution goals of the government. Social analysis of a project provides the basis for an assessment of the income distribution pattern of the project i.e. who are the beneficiaries and what is the income obtained from the project.

The first step in social analysis is to identify the beneficiaries of the net income flows generated by the project. Set out below is a listing of possible criteria for classifying the different types of beneficiaries:

- income level;
- public/private sector;
- national/foreign
- gender.

Once net project benefits have been identified and allocated appropriately to beneficiary groups, the next step is to 'weight' each group according to some generally agreed scheme. Some forms of net income, for example, which are received by the very poor people, might have a higher weight whilst others have lower weights. An important point is that whatever the weights which are used, they must be applied to all projects consistently if the social analysis is to contribute usefully to project selection.

In cases where it is not possible to apply the approach mentioned above, some indicators can be used to assess the social or distributional objectives of the project. These indicators include:

- value added generated by the project;
- direct employment created;
- income earned per worker
- reducing poverty incidence
- indirect or externality effects.

4.4 Cost-Effectiveness Analysis

The purpose of Cost-Effectiveness Analysis (CEA) is to find the means (activity, process or other intervention) by which the objectives of a project can be achieved with a minimum input of resources (physical, human or financial): or, where the resources are fixed, the means by which the maximum level of outputs can be obtained.

By focusing on the internal efficiency of the project in achieving its objectives, CEA can help to reduce waste in resource utilisation. The process of CEA essentially involves an assessment of the alternatives for achieving stated objectives and ranking these in accordance with their incremental cost. The alternative which then shows the least cost would be the preferred alternative.

It is important to remember that CEA can only provide a comparative assessment between projects aimed at achieving similar objectives or outputs. It cannot be used, for example, to make a choice between a clinic and a road or a wharf and a classroom.

The advantage of CEA is that the outputs or objectives of the project need not be measurable in monetary terms; they need only to be physically quantifiable. For this reason CEA is most widely used in the formulation of projects where the benefits cannot be quantified with satisfactory accuracy. Projects in the health, education or social welfare sectors normally fall into this category. It can, however, be used in other sectors such as infrastructure projects.

CEA as a technique is itself cost- effective: it is relatively easy to apply, provided that costs and outputs are clearly defined; and for many small projects, it can provide the basis for a sufficient appraisal of the project for normal capital budgeting purposes.

As noted, cost-effectiveness can be analysed in two ways:

- given the desired end results, CEA can indicate the least cost approach of achieving the objectives
- given a set of resource constraints it can provide an indication of the maximum outputs achievable within the constraints

The first approach would be used mainly in the formulation of infrastructure or equipment supply projects where the objectives can be defined in terms of capacity, output or levels of utilisation. Once the objective is defined the cost may be minimised through a choice between the alternatives in technology, design, location or phasing of the project.

The second method may be used in formulating projects in the social sectors where the resource constraints may be fixed. A comparison of the levels of output achievable will indicate the alternative which provides the highest level of output within the constraints. In this form it can assist in project formulation either to make a choice between the alternative options for the design of a particular project or to make a comparative assessment between similar projects in different locations. An assessment of a project's cost-effectiveness cannot on its own answer the question as to whether any particular project is itself financially or economically viable.

Recurrent and Annualised Costs

Before looking at the specific methods of measuring cost-effectiveness, it must be stressed that CEA is based on an analysis of the costs, both the structure of the costs in terms of capital and recurrent components, and the levels of those costs. A clear determination of the project costs is therefore vital to the application of CEA to any particular project.

One of the most serious problems in the implementation or operational phases of any project is the inadequate provision of funds to meet the recurrent costs. Project initiators may sometimes be unable to fully quantify the recurrent costs of their proposals.

The absence of recurrent cost information should not be allowed to pass unquestioned by the project formulator. Many projects and programmes have been slipped through with fuzzy statements about recurrent costs only for the hard truth to emerge when it is often too late to rectify the situation.

The recurrent costs should always, therefore, be calculated at the formulation stage and the estimates should be made as realistic as possible. For the formulator it is most important to assess the accuracy of these estimates and whether adequate funds will, in fact, be made available to meet them. This requires to be highlighted in the Project Proposal and addressed by BPC.

When analysing the recurrent costs it is necessary to identify any subsidies, either explicit or hidden, which may be required to support the project. Some projects will incorporate "programme support costs" into the capital expenditure. In others the provision of aid funded technical assistance may hide the fact that after one or two years local officers will be needed to take over and their salary costs, etc., will then become a recurrent cost.

Wherever possible, cost savings arising elsewhere as a direct result of the particular project should be identified. These may be used to provide an offset against the expected cost increase arising directly from the implementation of the project. In this way, the incremental increase in recurrent costs arising as a direct result of the project, can be determined.

In some measures of cost-effectiveness, particularly the cost per unit of output or cost per beneficiary, it is necessary to consider not just the capital costs of the facility, per se, but rather the annualised cost of the project over its expected life.

If the project has a finite life, a vehicle or a tractor may be expected to last, say, ten years and be virtually worthless after that, the actual capital cost can be spread (depreciated) over the life in equal instalments, i.e., at 10% per annum. This is then added to the annual recurrent costs to provide the annualised cost of the project. The annualised costs can then be apportioned on a per unit of output or per beneficiary basis.

Where the project has a longer life, e.g., a wharf, classroom, or clinic building, the capital element in the annualised cost can be calculated in a similar manner to that just described by spreading the depreciation element over a longer period. In the case of buildings and structures, it is recommended that those of timber construction be depreciated over 25 years (i.e. at 4% per annum) and those of concrete or brick over 50 years (i.e. at 2% per annum). Rural wharves, jetties or airfields should also be depreciated over 25 years.

Measures of Cost-Effectiveness

Cost per Unit of Output

The basic measure used in cost-effectiveness analysis is the cost per unit of output. This may be measured in two principle ways:

- the capital (and/or recurrent) cost per beneficiary of providing the particular facility or service
- the cost per unit of output (product or service) arising directly from the implementation of the project

In projects where there are direct beneficiaries of a project (students, farmers, hospital patients), the cost per beneficiary is a key measure in assessing cost-effectiveness.

In looking at the second measure it should be noted that many projects are not ends in themselves. The output of a project may be an intermediate good or service aimed at supporting a number of other separate projects or general development objectives. The cost of vehicles for agricultural extension officers should, for example, be related not just to the number of extension workers in the field, but also, wherever possible, to the incremental increases in farm output expected to be generated by the additional farm visits made possible by the availability of the new vehicle.

The appropriateness of a specific level of investment per unit of output, or cost per beneficiary, can not be an absolute one. It should, in general, be related to the standards of costs and benefits which are deemed appropriate to the location or community, e.g., the cost of primary education may be considered in relation to the national level of GDP per capita.

Every project should be affordable from the macro-economic perspective at the national level. A service or facility which has a per capita cost significantly above the level of GDP per capita would need to be subjected to more detailed analysis.

Relative Costs

Making a judgement about an appropriate level of investment per unit of output per beneficiary, requires the existence of a benchmark against which it can be judged. Such benchmarks can come in a variety of forms, such as:

- the accepted previous norm for the particular type of investment; if the capital cost of constructing a rural health centre has been in the order of SAT$5,000 per bed (in constant prices), a new proposal to spend SAT$7,000 per bed would need to be questioned and satisfactorily justified.
- cross comparisons both within and between countries; if an apparently effective (and generally comparable) facility can be provided at a particular location for say SAT$5,000 per unit, why should it cost SAT$7,000 somewhere else. There may of course be very good reasons for the differences since circumstances between any two countries, or indeed regions of the same country, are seldom directly comparable. Therefore whilst such inter-country comparisons can be suspect such a comparison does, nevertheless, provide a broad measure of relativity and can at least indicate any gross anomalies.
- the level of per capita community income in the particular project area (not necessarily the national average since there may be distinct differences between the rural and urban area); if this was say SAT$200 per capita per annum in a rural area, a proposal to spend SAT$5,000 per beneficiary on a particular project might be considered excessive and should, unless there were special circumstances, be subject to more detailed analysis.
- the unit cost of the inputs against the unit value of the outputs; a particular plant or animal disease may be causing production losses to farmers but the cost of eradicating the disease may far outweigh the likely incremental increase in output to be derived.

The use of such benchmarks is particularly relevant in the formulation of rural development projects. In these it is often very easy to overlook the per capita costs of projects when considering major infrastructure investments such as airfields, wharves and roads. In such cases it also enables comparisons to be made between the alternatives, e.g., the capital cost of a new airfield (plus the ongoing operation and maintenance costs) against the construction or rehabilitation of a wharf and improved shipping services.

As noted above, this comparative analysis cannot provide the whole answer as there may be many other factors to consider, the community to be served and the nature and volume of traffic forecasts, time savings, subsidy payments etc.

Whilst the cost per unit of output or per beneficiary is not a measure which can or should be applied rigidly, it nevertheless helps to identify some of the projects which are likely to be the least viable, or only marginally justifiable, in financial or economic terms. These are often the ones which are likely, therefore, to result in additional recurrent costs having to be met either by the community or government. The careful application of these criteria should assist the project formulator to encourage the project initiators to improve the project design to make it more appropriate, and cost-effective, in the particular circumstances.

In the health sector, for major projects or initiatives, the analysis may be taken a step further in the application of a Disease Impact Assessment. This analysis attempts to determine the number of healthy days lost as a direct result of each particular disease or infirmity. This can then be related to the population to determine the incidence rate and thence to the cost of the alternative programmes which aim to impact on the disease. The most cost-effective alternative would be the one which had the least cost for each healthy day saved or for each increment in improving (i.e. reducing) the incidence rate.

Whilst this might appear to be a simple concept it has some serious drawbacks in that it takes no account of the monetary value of different lives. It also requires considerable health data inputs which may not always be complete or reliable.

Physical Criteria

An analysis of physical criteria can be used to indicate whether a project has been designed within certain generally accepted limits or whether it has been over, or under, designed; e.g. for education projects classroom utilisation, staff-student ratios and building costs per square metre can be determined and compared with national averages or targets. Similar criteria may be applied for the physical utilisation of facilities in the health sector. For water supply projects the supply/consumption per user may be used as an indicator in determining cost-effectiveness.

Such measurements of physical criteria are only relative or comparative; they are not absolutes and, consequently, are not really sufficient in themselves for a full appraisal but they can make a useful contribution to a broader analysis.

Discounted Costs

In the above methods of assessing cost effectiveness, the concern has primarily focused on the capital cost aspects of the project. However, as noted in the section

dealing with recurrent costs, the implications of the level of recurrent costs and the cost structure of the whole project need to be assessed.

Projects for which there are different technology options will often have differing cost structures over the life of the project. One alternative may have a high capital cost, but low operating and maintenance expenditures, whereas an alternative to achieve the same outputs or objectives may have a low capital cost but higher operating and maintenance costs. Such technology alternatives occur in the construction of rural roads, coastal protection and similar projects where capital or labour intensive technologies are available for the implementation process.

If outputs or benefits from each alternative are expected to be broadly similar, an analysis of the cost structure of the alternatives will serve to provide an indication of the relative cost-effectiveness of the options. Such an analysis could, for example, also be used to compare the cost-effectiveness of the various technology options for a village water supply scheme where there was a choice between solar pumps, hand pumps or generator powered pumps. A similar set of alternatives could be considered for a village power project where the technology alternatives were solar power, diesel generators or even possibly a micro-hydro scheme.

In most projects, it is generally easier to quantify costs than benefits. The analysis of the cost side of the project equation can therefore provide a half way stage to, or an indication of the need for, a full cost benefit analysis. In the analysis of project costs it is possible to use the measures of shadow prices to determine the "economic" costs in the same way as for the full cost benefit analysis.

Having determined the project cost schedule, (either in financial or economic prices), over the expected project life, a discount rate is applied to determine the Net Present Value of the cost flows of each of the alternatives at that discount rate. Since the cost flows are negative the lowest (negative) net present value, at the given discount rate, will indicate the project alternative with the more attractive cost structure. Thus, for a given stream of benefits, the more attractive cost structure would imply a better overall rate of return once the common level of benefits has been generated.

The discount rate used for the analysis can be the opportunity cost of capital for the government or the agency promoting the project. The chosen rate will affect the absolute level of the Net Present Values, but will not normally affect their relativity to each other.

As for all measures of cost-effectiveness, this one cannot determine the actual viability of a particular alternative; it can only show the most favourable of a series of alternatives given common levels of outputs.

If, at the chosen discount rate, all the alternatives show high negative Net Present Values for their respective cost flows, this would indicate the need to carry out a more detailed analysis of the benefits to determine whether the benefits were likely to be sufficiently large to outweigh the high levels of costs of all the alternatives.

Application of Cost-Effectiveness in Project Appraisal

Many project proposals do not require sophisticated appraisal to reveal that they are good projects or that, on the other hand, they are inappropriate or poorly designed. The initiators of many of these latter, poorly designed projects, will try to avoid even the kind of common sense approach to project formulation outlined in this Manual. They might try to claim that the presence of un-quantifiables and the apparent difficulties of cost-benefit analysis render them "exempt" from having to do a detailed economic appraisal. They may also say that they have never had to justify projects in this detail before so why start now. Such excuses for avoiding proper project formulation should be resisted vigorously.

The timing of the application of a cost-effectiveness assessment in the project appraisal process may, like the appraisal as a whole, be crucial to its being taken seriously. The earlier the better must be the objective.

A well designed and formulated project will have considered all the alternatives and the project proposed for final appraisal should, thus, be the most cost-effective of the various alternatives. The project formulator should be initiating consideration of the options as early as possible. Establishing cost ceilings and other design parameters before detailed project design is started is generally a much better approach than criticism of over-design or unacceptably high costs after the design has been undertaken.

Table 4.7 details some, but by no means all, the key indicators of cost-effectiveness for projects in a range of sectors.

Table 4.7:Cost-Effectiveness Indictors: A Selection

Sector	Indicator
Agriculture/Fisheries	Cost per farmer/fisherman
Extension, Research, etc.,	Cost/farm output ratio
	Projected catch per unit effort
	Cost per hectare
Irrigation Schemes	Capital cost per hectare/farm
	Capital cost per farmer
	Maintenance cost per farmer
	Cost per unit of increased output
Roads General	Traffic flow(vehicles per day etc.
	Road construction cost per km
	Construction cost per vehicle user
	Operating cost savings per vehicle
	Transport/time savings
	Value of traded produce in area served
Rural Roads and Wharves	Cost per farmer/beneficiary
	Cost per hectare of agricultural land to benefit
Vehicles	Mileage utilisation
	Existing fleet usage
	Staff/vehicle ratio
	Additional output expected
Power Generation	Cost per kWh
	Cost per consumer
	Consumption per consumer
Water Supplies	Supply/consumption per head (in relation to national averages)
	Cost per unit of consumption per head (in relation to income)
	Incidence of water borne disease
Housing	Cost per square metre
	Total space per unit
	Cost/occupant income ratio
	Rent/cost ratio
Education	Cost per student output
	Teacher student ration
	Building costs per square metre
	Capital costs per pupil
	Annualised costs per pupil (in relation to community income)
	Classroom utilisation ratio
Health	Cost per patient
	Cost per bed
	Space per bed
	Bed utilisation
	Population per bed
	Doctor/nurse ration
	Medical staff/patient ratio
	Medical staff/bed ratio
	Cost per item delivery (e.g. vaccination)
	Average in-patient stay
	Population per clinic
Administration	Cost per square metre
Offices etc.	Space per occupant

5.0 Project Implementation and Monitoring

5.1 Overview

Project implementation starts from the time a project is approved by the CDC and funded through ACC (both foreign and local funds requirements). Project mobilisation involves the co-ordination and allocation of resources that serve to make the project operational. Mobilisation tasks are directed to:

- establishing a project team
- obtaining the required manpower
- securing necessary authorisation in terms of funding and other necessary support

Project mobilisation would require the management to develop a project implementation plan and to establish an effective organisation structure. For the preparation of a project implementation plan, the project management has to re-establish the project objectives and set implementation priorities. In order to undertake this task it would be advisable to prepare a Project Breakdown Structure (PBS) so as to develop outputs and activities which would achieve the objectives.

In addition, certain scheduling for implementation has to be carried out. The scheduling will translate the project plan into definable, timed steps toward specific objectives, and will also present the planned elements in activities and an acceptable time scale. The scheduling will determine the inputs required (quality and quantity-and functions or tasks to be performed) and will show the starting and finishing time of the various major component activities that must be completed before the project can start operation.

Financial mobilisation is another important aspect that has to be taken into consideration during the mobilisation phase. Funds and budget allocations in adequate amounts have to be available as required for the project to be efficiently and effectively implemented. Requests for funds and budget allocations should comply with the prevailing budgeting allocation and co-ordination procedures.

Project implementation monitoring is the continuous process of assessing both the efficient functioning of the project activities in the context of the implementation schedules and the efficient use of project inputs (financial resources) to reach the project objective(s). Project implementation monitoring is therefore closely linked to the achievements as stated in the project implementation plan. This reflects the project design parameters developed during project formulation and assessed at the stage of project appraisal.

5.2 Project Implementation Planning

Organisational and Manpower Analysis

General

This is concerned with how and by whom the project should be executed and operated so as to establish responsibility and accountability. The establishment of an efficient implementation organisation and management is one of the keys to the success of the project. The implementation organisation and management should indicate which

entities are responsible for the various aspects of project execution and operation. They should have adequate authority, staffing, equipment and finance to undertake the various functions. Thus the various entities have to be provided with legal status, function and authority.

Project Organisation

The project can be operated by three organisational structures namely:

- Functional Organisational Structure
- Projectised Organisational Structure
- Matrix Type Organisational Structure

Functional Organisational Structure

This traditional model is used most prevalently and it is hierarchical in structure (pyramid). This system is usually applicable where projects are small in terms of size and cost and only involve one or two functional departments.

Projectised Organisational Structure

This organisation is the opposite to functional structure and requires a separate management organisation. It is usually self-contained and generally consists of all functional units. This type of organisation will achieve a singleness of purpose and have a clear perception of goals.

Matrix Type Organisational Structure

This is a multidimensional form of structure with the standard vertical hierarchical structure combined with a superimposed horizontal structure of a project manager. This structure lies between the functional and projectised structure and tends to maximise the strengths and minimise the weaknesses of both the projectised and functional structures. By this structure it is possible to retain clear perception of project goals without the need to set up a separate body as in the projectised form. The major weakness is that the person at the project level is answerable to two bosses i.e. vertically to his functional department head and horizontally to the project manager/director.

Project Manager/Director

A successful project organisation needs a project manager/director with broad skills of a general manager. In selecting a project manager/director certain criteria have to be taken into consideration. The project manager/director must be able to combine technical knowledge required in the project with management abilities for leadership of the entire project team.

Scheduling Techniques for Project Implementation

General

Successful management of project implementation requires careful planning, which includes scheduling, to facilitate co-ordination of inter-related activities — hence the need to prepare a detailed Project Implementation Plan. The first step is to identify components and activities involved in the implementation of the project. This can be done by breaking the project down using the Project Breakdown Structure (PBS) technique.

The identified components/activities are then scheduled to provide a framework for co-ordination, monitoring and control of the resources used. These scheduling techniques include the Bar (Gantt) Chart and Network Analysis.

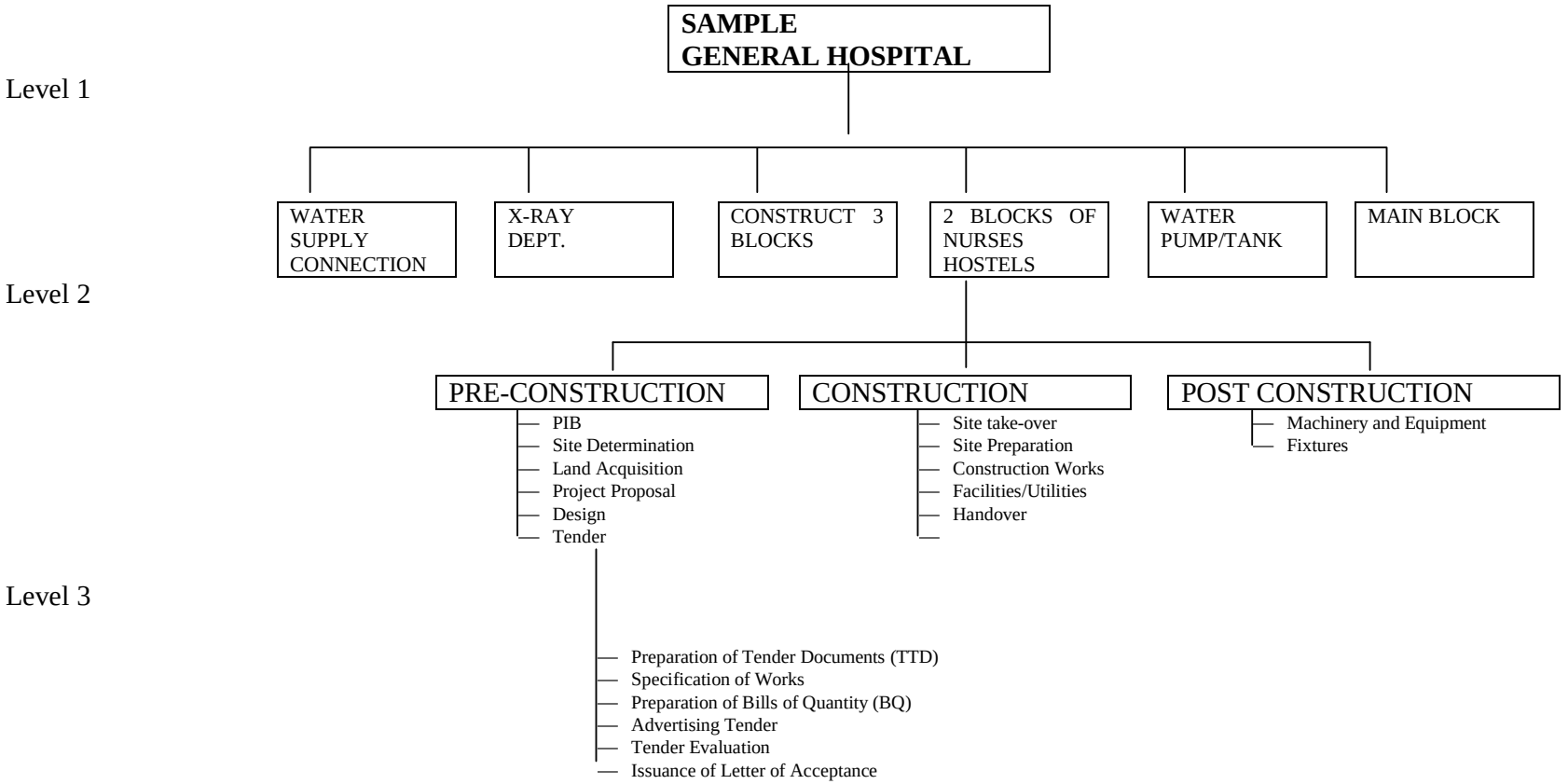
Project Breakdown Structure

PBS is a systematic method of identifying (in a hierarchical and structured manner) the various activities involved in implementing a project. PBS diagrams are used as a first step in the preparation of Bar (Gantt) Chart and Network Analysis for projects. In developing a PBS the following points should be noted:

- subdivide the project into discrete and logical work packages or activities. This should be done using the logical framework analysis (Appendix 3)
- establish assignment of responsibilities for all identified tasks to specific organisations and organisational elements (e.g. division, sector, officer-in-charge)
- check proposed PBS against the reporting requirements of organisations involved

Figure 5.1 presents a sample PBS of a health project. Level 1 indicates the main project as a whole. Level 2 involves breaking down the project into its main components or sub-projects. Level 3 involves breaking down each of the individual components into major implementation activities that must be carried out from the beginning of project implementation (i.e. after the project or its funding has been approved, involving pre-construction activities) until total completion (i.e. post-construction stage). Level 4 shows the detailed functional activities that would be undertaken by the implementing agency. For the purpose of preparing the Project Implementation Plan it is sufficient to identify major implementation activities down to Level 3.

Figure 5.1 : Project Breakdown Structure



Integrated Scheduling System

The second step in preparing a Project Implementation Plan is to estimate the dates to start and to end each of the major implementation activities. These data can be incorporated into the Integrated Scheduling System (ISS) shown in Figure 5.2.

Figure 5.2 Integrated Scheduling System

Project No: Component No: (if applicable)

Name of Project:
GENERAL HOSPITAL

Name of Component:
CONSTRUCT 2 BLOCKS OF NURSES' HOSTELS

Executing Agency:
MINISTRY OF HEALTH

Implementing Agency:
PUBLIC WORKS DEPARTMENT

Codes District Ministry Dept.

Activity	Planned Dates		Remarks
	Start	Complete	
1. SITE DETERMINATION			
2. LAND ACQUISITION			
3. PROJECT BRIEF			
4. DESIGN			
5. TENDER			
6. SITE TAKEOVER			
7. SITE PREPARATION			
8. CONSTRUCTION WORKS			
9. UTILITIES			
10. FIXTURES			
11. MACHINERY AND EQUIPEMENT			
12. HAND OVER/COMMISSIONING			

Project Implementation Plan

On the basis of the PBS and the ISS it is relatively straightforward to prepare the Project Implementation Plan. The preparation of the Project Implementation Plan is normally based on the preparation of the Bar (Gantt) Chart supported by Network Analysis (as appropriate).

The **Bar (Gantt) Chart** comprises horizontal bars each representing the major implementation activities. The beginning and end parts of the bar indicate the

schedule start and finish times of the major activities. The horizontal axis indicates the time scale. An example of a Bar (Gantt) Chart of one of the components/sub-projects of the sample health project is shown in Figure 5.3.

The Bar (Gantt) Chart is a simple and effective way of showing the implementation status of the project and component activities, primarily for strategic purposes. However, the Bar Chart is not able to show explicitly the dependency relationships among the activities. Hence a Bar Chart cannot impute the effects of delays in individual activities on the overall project completion. Thus, the need, where appropriate, to use the Network Analysis technique.

A **network analysis** is a logical diagram showing the relationship of activities involved in completing a project. This is an advantage over the traditional Bar (Gantt) Chart as the network diagram is able to show the inter-dependencies among the various activities and the effects of their changes on one another. There are two techniques used in network analysis i.e. Critical Path Method (CPM) and Program Evaluation Review Technique (PERT).

The difference between CPM and PERT is in estimating the time (duration) taken to complete an activity. In CPM, the activity performance time is deterministic and based on past experience. In PERT, the activity performance time is based on probability. The expected time is estimated as follows:

$$\text{Expected time} = (a + 4m + b)/6$$

where: a = optimistic time; m = most likely time; and b = pessimistic time

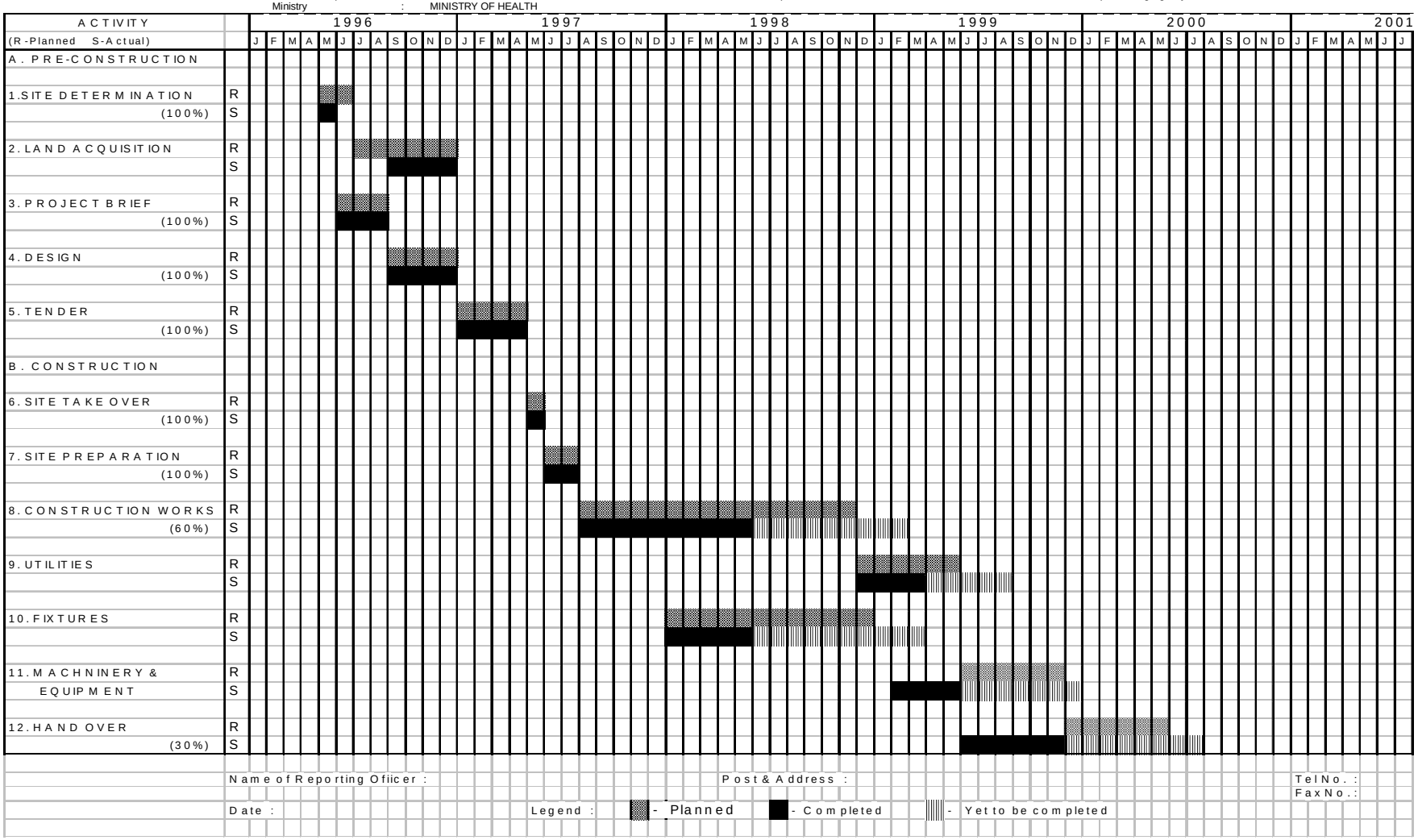
(Note:The formula is a weighted average with more weight given to ‘m’ i.e. the most likely time).

The network analysis also involves computing the critical path through the project logical network and identifying the critical tasks which must be completed as scheduled if the whole project is to be completed on time. It will also help to identify non-critical tasks whereby delays in completion of such tasks will not delay the project completion, unless they are so delayed so as to cause a shift of the critical path i.e. the non-critical tasks became critical tasks.

Unless time is of the essence in completing the project, or the project proposal is submitted by a technically competent planner or consultant, it is considered sufficient if the Bar (Gantt) Chart technique is used in preparing the Project Implementation Plan.

Figure 5.3 Project Implementation and Monitoring Plan (Bar Chart) for Sample Health Project

Component No :
District :
Name of Project : GENERAL HOSPITAL
Name of Component : CONSTRUCT 2 BLOCKS OF NURSES HOSTELS
Ministry : MINISTRY OF HEALTH
Budget WS$ Allocation :
Component Cost : WS$
Line Department : MINISTRY OF HEALTH
Implementing Agency : PUBLIC WORKS DEPT.



5.3 Project Implementation Monitoring

The steps in Project Implementation Monitoring are as follows:

- once MOF's Budget Division (BD) has finalised the financial arrangements required for project implementation, it establishes a Project Co-ordinating Committee (PCC)
- BD to call the first PCC meeting and submit a schedule for the PCC meetings for the project implementation period
- at the first PCC meeting the Controlling Officer (CO) of the Executive Agency (EA) will submit:
  - ⇒ an updated and revised Project Implementation and Monitoring Plan (Figure 5.3) which would include
    - ∗ a breakdown of the project in logical work packages (activities) for the project to reach its objective(s)
    - ∗ the scheduling of the related work packages (activities).
  - ⇒ an updated and revised Project Costing Report (Annex 5.1)
  - ⇒ a copy of the agreement with the Implementing Agency to implement the project.
  - ⇒ the scheduling of project implementation funds requirements (as a departmental budgetary output/sub-output) for the related budget years
  - ⇒ a schedule of regular Project Implementation and Monitoring Reports[8]
  - ⇒ a schedule of regular Project Costing Reports
- on the basis of the first PCC meeting, BD will prepare an outline of the first PCC report for submission to CDC
- CO will prepare Project Progress Reports (Annex 5.2) as agreed with BD
- BD will submit the related Progress Reports with a Memorandum as and when required by the CDC
- EA/IA will at the completion of the report, prepare a Project Completion Report for endorsement by BD and submission to CDC (Annex 5.3).

The institutional responsibility of Project Implementation Monitoring rests with BD, but the information base to undertake Project Implementation Monitoring is to be provided by the CO.

The Role of the Project Co-ordinating Committee

The role of the PCC is twofold. Firstly, it will be a forum addressing project implementation problems and issues related to project implementation performance. Furthermore, the PCC will advise on possible project variation orders

8 In case the project is donor funded, the reporting formats may be adjusted to meet the requirements of the concerned donor, if appropriate and if the scope of the donor reporting meets with the requirements of BD.

(including their financial implications) and/or requests for additional funds.[9] Secondly, the PCC will serve as a forum and a meeting place between the project planners, the implementers and the policy decision makers. The reason for the latter function is the need to maintain a focus on the project objective(s).

As the project has emanated from the related analysis of the national policy framework and the strategy to strengthen related sectoral developments through the implementation of projects and programmes, it is essential to maintain a continuous communication between the policy decision makers and the project implementers to ensure that the outcome of the project is in line with the related policies and strategies.

The Role of the Executive Agency

The role of the EA (the responsible line ministry/agency executing the project), will be to ensure cost efficient functioning of the project activities and timely project implementation. In fulfilling this obligation, the EA will report on a regular basis to BD on the physical and the financial progress of project implementation. In order to accomplish this task, the EA will enter into an agreement with the agency which will implement the project i.e. the Implementing Agency (IA). In the case of the implementer of a project being the EA, the referenced implementing party would be the Technical Section of the EA or a Consultant appointed by the EA to supervise the implementation of the project.

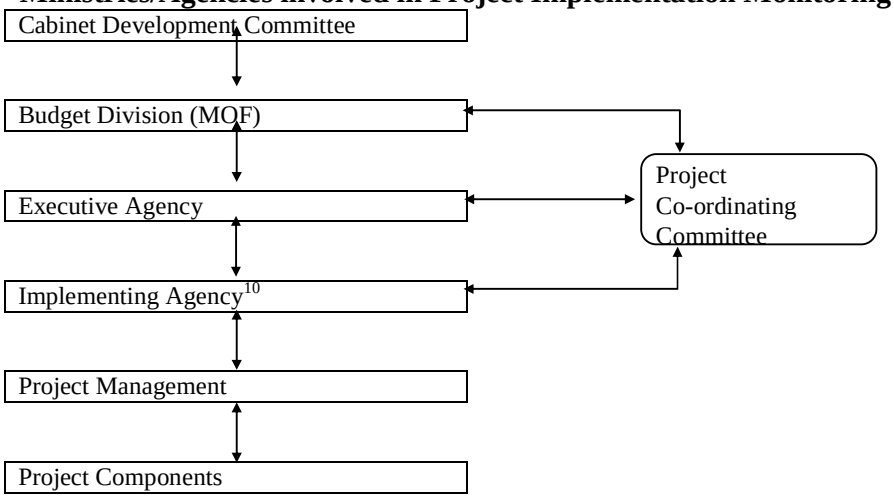
The Role of the Implementing Agency

As the responsible project implementer, the IA will on a day-to-day basis monitor the physical as well as the financial progress of project implementation. This will take the form of a continuous assessment of both the efficient functioning of the project activities in meeting the implementation schedules and the efficient use of the financial inputs allocated to the project. Project monitoring will in this perspective be an internal project activity of the IA and an essential part of the day-to-day management of project implementation. Regular meetings will be conducted between the IA and the EA, the main purpose of the meetings being to identify and solve possible implementation problems at an early stage.

Figure 5.4 illustrates the relationship between the ministries/agencies involved in project implementation.

9 The financial/economic implications of a variation order and/or a request for additional funds to be assessed by EPPD prior to the related PCC meeting.

Figure 5.4: A Framework Outlining the Relationship between Ministries/Agencies involved in Project Implementation Monitoring



Legend

↕ two way information flow

10 Sometimes the Implementing Agency may be Technical Section of the Executive Agency or a Consultant appointed by the Executive Agency

Annex 5.1 Project Costing Report for Sample Health Project

Name of Reporting Office :
Address :
Telephone No. :
Fax No. :
Reporting Date : Date :

Project No:	Component (if applicable) No:		
Name of Project: GENERAL HOSPITAL	Allocation: WS$		
Name of Component: CONSTRUCT 2 BLOCKS OF NURSES' HOSTELS	Component Cost: WS$		
Executing Agency: MINISTRY OF HEALTH	Expenditure[11]: (WS$)		
Implementing Agency: PUBLIC WORKS DEPARTMENT			
Codes	District	Ministry	Dept.

Activity	Costs			Expenditure as per-centage of original
	Original	Revision[12]	Expenditure	
1. SITE DETERMINATION 2. LAND ACQUISITION 3. PROJECT BRIEF 4. DESIGN 5. TENDER 6. SITE TAKEOVER 7. SITE PREPARATION 8. CONSTRUCTION WORKS 9. UTILITIES 10. FIXTURES 11. MACHINERY AND EQUIPEMENT 12. HAND OVER/COMMISSIONING				
Total Costs				

11 (till now)

12 each revision/variation order to be documented in a separate attachment for the approval of BD.

Annex 5.2 Progress Report No. ( ) on Project: ( )

1. Purpose of Submission

The purpose of the submission to be elaborated on (as appropriate) under one of the following headings:

- *Project progress report (state period reported on)*
- *Project variations*
- *Supplementary funds requested*
- *Other*

2. Executing Agency

3. Implementing Agency

4. Previous CDC Meetings

Reference to be made to previous CDC meetings under the following headings:

- *Previous CDC actions requested*
- *Previous CDC actions completed*

5. Funding Sources and Conditions

Funding to be elaborated under the following headings:

- *External assistance*
- *Local/Government contribution*

6. Current Financial Status

The financial status of the project to be elaborated on under the following headings:

- *Total expenditure to date*
- *External funds received*
- *Local/Government resources approved*
- *Amount approved in current budget year*
- *Amounts already disbursed to or by Implementing Agency*

7. Additional Resources Requested

Requests for additional resources to be elaborated on under the following headings

- *External*
  - ⇒ *Capital inputs*
  - ⇒ *Programme support*
- *Local/Government*
  - ⇒ *Capital inputs*
  - ⇒ *Programme support*
  - ⇒ *Recurrent costs.*

8. Statements in Support of Submission

Statements in support of the submission to be made under the following headings:

- *Status report on implementation (% physical completion)*
- *Balance of project still to be completed*

- ⇒ *Remaining works or other activities*
- ⇒ *Revised implementation schedule*
- ⇒ *Revised total project costs*
  - ∗ *Capital costs*
  - ∗ *Recurrent costs*

- *Reason for request of project variation, additional funds etc.*

9. Possible Implications on Project

The possible implications of the project to be elaborated on under the following headings:

- *Project financial and economic rate of return*
- *Project reaching its objectives*
- *Project sustainability*

10. Summary of Issues

11. Recommendations for Consideration

An outline of the recommendations for CDC's consideration

12. Signature of Executive Agency

13. Date

Annex 5.3a Project Completion Report on Project: ( )

The Project Completion report to be prepared as outlined below and submitted by the Executing Agency to BD of the Ministry of Finance, which in turn will prepare a Memorandum (Annex 5.3b) as the basis for the Project Completion Report to be submitted to CDC for consideration.

The format of the Project Completion Report to follow the outline given below.

1. **Purpose of Submission**
2. **Executing Agency**
3. **Implementing Agency**
4. **Previous CDC Meetings :***Reference to be made to previous CDC meetings under the following headings:*
   - Outline Project Progress Reports submitted to CDC and actions requested
5. **Status at Project Completion** *Outline on the status of the project under the following headings:*
   - Achievements made
   - Project hand over to Operating Agency (OA)
   - Capability and capacity of OA to operate the project for the project to meet its objectives (availability of qualified personnel)
   - Management structure of OA
6. **Funding Sources and Payments Status**

   Funding to be elaborated under the following headings:
   - External assistance
   - Local/Government contribution
   - Funding requirements of the OA (recurrent costs)
7. **Financial Status**

   The financial status of the project to be elaborated on under the following headings:
   - Total Expenditure
   - External funds received
   - Local/Government resources received
8. **Possible Implications on Project**

   The possible implications of the project to be elaborated on under the following headings:
   - Project financial and economic rate of return
   - Project reaching its objectives
   - Project sustainability
   - Requirements for further external assistance.
9. **Summary of Issues**
10. **Recommendations for Consideration**

    An outline of the recommendations for CDC's consideration
11. **Signature of Executing Agency**
12. **Date**

Annex 5.3b Memorandum on Project Completion Report on Project:( )

submitted by (Agency) for <u>Cabinet Development Committee</u>

CDC Secretariat use only

CDC Paper No.

Salient Project Features

Project Objective(s):
Original Approved Cost:
Latest Approved Cost: (date)
Original IRR[27]:
Latest IRR: (date)
Donor:

BD Comments:

Recommendations:

The Memorandum is an assessment of the project at its completion prepared by the Executing Agency. The Memorandum to be prepared by BD and submitted to CDC for consideration.

27 if costs and benefits can not be described in financial and/or economic terms, benefits and costs to be elaborated on within the concept of project cost effectiveness.

6.0 Project Evaluation

6.1 Overview

Project evaluation is project appraisal in reverse in the sense that it takes place after project implementation has commenced and focuses attention on what has actually been achieved. An evaluation attempts to:

- critically re-examine, in the light of subsequent project implementation, the project rationale stated in the formulation and appraisal documents
- determine the adequacy of the project to overcome the identified constraints to be solved and thus to promote desired changes
- compare the actual attainments with the targets set and identify the reasons for shortfalls or over- achievements
- assess the efficiency of project implementation procedures and the quality of managerial performance
- determine the financial and economic efficiency of the project
- determine the effects and impacts (including the environmental impact) of the project
- present the lessons learned and the recommendations that follow from them.

This broad agenda will not necessarily be achieved in every case, and some parts of it should only be undertaken selectively. Nevertheless, it gives the scope of the evaluation function. This chapter discusses the substantive focus and types of evaluation undertaken for development projects.

6.2 Formal Project Evaluation

Formal project evaluation as conceived in this Manual is an independent evaluation of the original design features of the project that focuses attention on the following main features of the project:

i) performance of the project

ii) output, effects, and impact of the project

iii)economic and financial efficiency of the project

Performance

The best understood element of an evaluation is the assessment of performance of the project. This, broadly defined, includes a review of all the activities undertaken by the project to achieve its originally stated objectives. These could range from constructing physical infrastructure through providing technical advice to beneficiaries and/or departmental services to the community. A performance evaluation requires a comprehensive, retrospective look at the project from its inception to the time of the evaluation. The items usually covered in such an evaluation include the following.

- *Project identification, preparation, and appraisal.* The review should include an assessment of the quality of project identification, the Project Proposal and the feasibility studies undertaken, the commitment and the capability of the executing/implementing agencies and the adequacy of the Project Appraisal Report

- *Project specification.* The objectives, components, activities, targets and underlying intervention models should be reviewed. Specific questions which an evaluation seeks to answer are: How were the project's objectives determined? Were they consistent with national goals? Were the project components and strategies adequate to achieve the targets? Were the targets realistic? Was the intervention model basically sound?
- *Timing of project start-up and implementation*. The usual questions for evaluation are: Was there an unusual delay in the start-up? If so, what were the reasons and the possible repercussions for the project? Was the project able to complete the various activities within the stipulated times?
- *Services and inputs provided.* The adequacy of the supply of the services and inputs to be provided by the project. The main inputs of development projects fall into the following categories: physical infrastructure - quantity and quality of construction and whether it was completed when needed; the required timings of utilisation; the required inputs - volume, quality, and timely supply of inputs including project funding and materials/services and institutional building aspects i.e. the extent to which public and private institutions were developed or strengthened.
- *Managerial performance.* The overall performance of the managers; were they able to manage and supervise project activities effectively? Did they establish necessary linkages with Governmental agencies and private organisations? Were they task-oriented? Were the human and material resources properly utilised?
- *Financial performance*. Financial outlays to be compared with the original costs and budgets to examine whether the financial targets and covenants in project agreements were fulfilled and whether in general there has been satisfactory financial control. How were cost overruns financed and underruns re-deployed?
- *Economic performance*. How does the economic performance at the point of evaluation compare with the economic evaluation undertaken at the time of project formulation.

Most of the information required for the evaluation of project performance is available within project documents, financial and administrative records and secondary data available from the executing and implementing agencies. These may need to be supplemented by interviews with principal project staff and representatives of relevant institutions. If a satisfactory management information system has been set up, the required data will be readily available

Output, Effects and Impacts

The second focus for the evaluation is on the output, effects and impact of the project. It will also include any environmental impact other than those which were predicted at the time of project formulation. A review of performance alone fails to provide a firm basis for such an assessment. It is quite possible for all the activities and tasks expected of a project to be completed satisfactorily within the stipulated time and resources and yet not lead to the anticipated results. For example, service centres have been constructed and the feeder roads linking beneficiaries to these centres have been established, but the extension centres remained unused. Or participatory organisations have been established, but they may have failed. In each of these instances, an evaluation confined to project implementation based on the original intervention model

alone, would conclude that the project had succeeded, although this would not have been the case. In development projects, as in other arenas of human endeavour, well-planned, sincerely executed efforts do not necessarily produce the desired results.

When they are implemented, development projects generate multiple chain reactions that cannot always be anticipated. Some beneficiaries do benefit, but others may be displaced or disadvantaged by economic forces unleashed by the accrual of the initial benefits resulting from these chain reactions.

Economic and Financial Efficiency

One of the prime objectives of an evaluation is to determine the efficiency of the project by computing financial and economic rates of return on the funds invested in it. Such returns are estimated at the time of project formulation and appraisal on the basis of output models. The purpose of a re-computation is to determine, first, whether the original estimates proved to be realistic and, second, the reasons for and implications of any significant variations.

6.3 The Project Cycle and Types of Evaluations

Project evaluation is carried out at one or more of three stages of the project cycle:

- during implementation, when there is definite evidence that the project will not meet its objectives
- at the end of implementation, when the project funding is in its final stages
- some years after the project's termination, when its long-term effects and impact are visible.

These are known as pre-project completion, terminal and post-project evaluations. The distinction between pre-project completion and a terminal evaluation is not always clear when projects are funded in successive phases. In such cases, an evaluation can be construed as pre-project completion or terminal depending on its recommendations. If the recommendation is to undertake a major redesign that will lead to a radically different second phase, the evaluation might be regarded as the terminal one of the first phase. The distinction and nomenclature are often semantic.

Pre-project Completion Evaluation

A pre-project completion evaluation is carried out during project implementation. It is often a result of the project not meeting its development objectives. The distinction from later evaluations is that corrections to the current project still can be made on the basis of its findings and recommendations. The primary focus of a pre-project completion evaluation is on project performance, i.e.:

- organisational structure and management capabilities, progress and problems in staff recruitment and placement, ability to get such necessary resources as office space and transportation for project staff, and establishment of organisational linkages with various Governmental agencies and organisations
- procurement and payment of the necessary goods and services from national and international sources (in many projects, procurement/payment delays become a major obstacle to effective project implementation)
- progress in establishing delivery systems for supplying the necessary inputs and services to the target population

- progress in building physical infrastructure
- volume and quality of inputs and services
- initial response by the target population to the inputs and services
- preliminary indications about emerging outputs
- changes in the environment since appraisal which are likely to affect performance during the remaining implementation

At this stage it will not be possible to assess the effects and impact of the project. At best the evaluation can critically examine the continuing validity of the assumptions on which the projections of likely impact were based and, if necessary, amend these in the light of developing circumstances.

Well-considered pre-project completion evaluations can lead to suitable modifications in project design or strategies and they can be instrumental in:

- changing the nature of the inputs and services
- in modifying the intervention approach
- shifting the emphasis among target groups

Project Completion Evaluation

A project completion evaluation (also known as a project completion report) is conducted when the funding for the project comes to an end, although that does not mean that the services and inputs being supplied by the project cease. In most cases it is assumed that the services will be institutionalised within the system.

The scope of a project completion evaluation is broader than that of a pre-project completion evaluation because, firstly, the longer time available for review should facilitate a reasonable assessment of the initial outputs and effects and secondly, the completion of funding requires a careful examination of the performance in which all responsible parties are involved.

Furthermore, in most cases, the forecast of the impact of the project can most likely be improved on the basis of the evidence accumulated during the project implementation. Linked with the estimation of impact are two items which may be explored in project completion evaluations: the sustainability of the benefits accruing to the target population and the rates of return on investments.

A project completion evaluation needs to examine the sustainability of the benefits because once external funding ends many services and inputs are either discontinued or drastically reduced in quality or quantity. Relevant questions for a project completion evaluation include: What are the realistic prospects of sustaining the benefits in the long term? What would be the consequences for project impact if this does not happen? And what can be done about it? (It should, however, be noted that it is not always possible to obtain an accurate picture of the project's sustainability at this stage).

The rates of financial and economic returns calculated at the time of project completion evaluation should be more realistic and accurate than earlier estimates, because at least some of the data required for the calculation are known with reasonable accuracy.

To search out the most relevant data, the project completion evaluation should review a wide range of data and information gathered from various sources. In addition to the project records, documents, and outputs of the management information system, a search should be made for secondary data that are relevant for a comparison. If

necessary, the project completion evaluation should include studies of the beneficiaries' perceptions of the project's benefits and of the impact on their lives.

The recommendations for a project completion evaluation, unlike those of a pre-project completion evaluation, are primarily meant to improve the planning and design of future projects. In some cases, the future projects may be a second phase of the one under evaluation, in which case the lessons learned have a direct relevance.

Post Project Evaluation

Post project evaluation is often referred to as "impact evaluations" or ex-post evaluations. Post project evaluation is designed as an in-depth study of the impact of an intervention and is usually carried out some years after completion of its funded implementation. There are two reasons for conducting ex-post evaluations. Firstly, as stated above, much of the lasting impact will not be visible at the time the project comes to an end. Second, such impact as is detected at the time of the project completion evaluation might prove transitory. Not uncommonly, development projects which show promising gains in the early years of their operations fail to sustain the gains in the long term.

6.4 Criteria for Undertaking Project Evaluation

There are normally three institutions which would advise the Government to undertake project evaluations:

- donor (financing major part of the project)
- EPPD
- BD

Donor

The donor financing major part of the project would normally stipulate the required project evaluations to be undertaken in the MoU signed between the Government and the donor. As the aim of the related evaluations would be the same for the Government and the respective donor, it would be appropriate to undertake joint project evaluations. This would mean the preparation of joint TOR for the respective project evaluations and ensure that Government representatives are members of the evaluation team.

EPPD

As the Project Appraisal Report prepared by EPPD may stipulate project evaluation(s) at certain stages of the project cycle, EPPD may advise CDC on the scope and nature of project evaluations as well as whether the evaluation should be carried out by an ad hoc committee or whether the evaluation should be carried out by an independent entity.

BD

As BD is the responsible agency for overall project implementation monitoring, it is responsible for proposing the need to undertake project evaluations, including the scope and nature of project evaluations, to CDC. This would include a recommendation on whether the evaluation could be carried out by an ad hoc committee or whether the evaluation should be carried out by an independent entity.

6.5 Institutional Responsibility

At the completion of a joint evaluation, EPPD is to prepare a Memorandum (Annex 6.3) attaching the evaluation report for submission to CDC (see Annexes 6.1 and 6.2).

If joint project evaluations can not be carried, the roles and responsibilities of Government agencies/committees for project evaluations are as follows:

i) EPPD to advise the CDC (through the CDC Secretariat) on project evaluations on the basis of the related proposals made in the Project Appraisal Report.

ii) BD to advise, as part of its reporting responsibility on project implementation progress, on the scope and nature of project evaluation to CDC (through the CDC Secretariat).

iii) the decision as to whether project evaluation should be carried out by an ad hoc committee (including its composition)[13] or by a completely independent body would rest with the CDC.

iv) at the completion of a Project Evaluation, EPPD to prepare Memorandum (Annex 6.3) attaching a copy of the project evaluation report for submission to CDC.

13 EPPD could act as the secretariat

Annex 6.1 Project Evaluation

The focus and structure of a project evaluation report depends on whether the evaluation addresses the project during project implementation, i.e. Pre-project Completion, at project completion, i.e. Project Completion Evaluation or after the project has been operational for some time, i.e. Post Project Evaluation. Bearing in mind these stages of project evaluation the outline of a project evaluation report given below can, together with the outline given in Chapter 6, be used as a guideline. At the end of this Annex 6.1 is given a guideline format for a project evaluation report.

1. The Project

- **Project title**
- **Stage of project evaluation**

2. Project Performance

An evaluation of the performance of the project is a comprehensive, retrospective look at the project from its inception to the time of the evaluation. In this context the orientation and focus of the evaluation should be on the project during implementation i.e. pre-completion or at the stage when the project has been completed i.e. project completion.

- **Project identification, formulation and appraisal**
  A review of the how the project was identified, the quality of the PIB (Annex 2.4b), the Project Proposal (Annex 2.5b) and the feasibility studies undertaken, the commitment and the capability of the executing/implementing agencies and the adequacy of the Project Appraisal (Annex 5.1).
- **Project specification.**
  A review of the objectives, components, activities, targets, assumptions and underlying intervention models. Specific questions which an evaluation seeks to answer are: How were the project's objectives determined? Were they consistent with national goals? Were the project components and strategies adequate to achieve the targets? Were the targets realistic? Was the intervention model basically sound?
- **Timing of project start-up and implementation.**
  The usual questions for evaluation are: Was there an unusual delay in the start-up? If so, what were the reasons and the possible repercussions for the project? Was the project able to complete the various activities within the stipulated times?
- **Services and inputs provided.**
  A review of the adequacy of the supply of the services and inputs to be provided by the project. The main inputs of development projects fall into the following categories: physical infrastructure - quantity and quality of construction and whether it was completed when needed; the required timings of utilisation; the required inputs - volume, quality, and timely supply of inputs, such as project funding and materials/services and institution building aspects i.e. the extent to which public and private institutions were developed or strengthened.
- **Managerial performance.**

A review of the overall performance of the managers; were they able to manage and supervise project activities effectively? Did they establish necessary linkages with Governmental agencies and private organisations e.g. through the PCC ? Were they task-oriented? Were the human and material resources properly utilised?

- **Financial performance.**
  A review of the financial outlays to be compared with the original costs and budgets to examine whether the financial targets and covenants in project agreements were fulfilled and whether, in general, there was satisfactory financial control. How were cost overruns financed and underruns re-deployed?
- **Economic performance.**
  How does the economic performance at the point of evaluation compare with the economic evaluation undertaken at the time of project formulation.

3. Outputs, Effects and Impacts

This Section focuses on whether the project has reached the development objectives which the project was set out to reach at the inception. In this context the orientation of the evaluation structure towards the outputs, the effects and the impacts which the project has (or has not) achieved in a sustainable manner after the project has been operational for some time.

4. Economic and Financial Efficiency.

This Section deals with the re-computation of the medium to long term economic and financial rate of return on the funds invested in the project[14]. In this context the orientation should be towards the long term sustainability of the project.

14 in case project formulation has been based on cost-effectiveness analysis rather than cost-benefit analysis, this Section should reflect the cost-effectiveness of the project accordingly

Annex 6.2 Format for Project Evaluation Reports

Executive Summary of Conclusions and Recommendations (4-6 pages)

1. **Introduction**
    - *Background of the evaluation*
    - *Brief description of the project*
    - *Evaluation methodology including the general approach used, main sources of data , professional profile of evaluation team and limitations associated with methodology and approach.*
    - *Structure of report*
2. **Project relevance**
    - *Rationale and context of the project at its inception*
    - *Changes in project context during implementation*
    - *Relevance of project in relation to development priorities (at the time of evaluation and in relation to priorities at various levels - national, regional, district and local levels)*
3. **Efficiency**
    - *Project progress compared to plans*
    - *Costs and utilisation of resources compared to budget and plans*
    - *Achievement of results*
    - *Results in relation to resource utilisation*
4. **Effectiveness**
    - *Expected achievement of objectives when the project was designed*
    - *Actual or expected achievement of objectives at the time of evaluation*
    - *Factors and processes affecting achievement of objectives.*
5. **Impact of the project**
    - *Local priorities, needs and demands*
    - *Foreseen and unforeseen impact on target groups and other affected parties*
    - *Foreseen and unforeseen impacts at the institutional level*
    - *Other major impacts of the project*
    - *Factors and processes which explain project impacts*
6. **Sustainability**
    - *The extent to which the project is/will become sustainable*
    - *Factors affecting sustainability (political, institutional, economic and financial, technological, socio-cultural and environmental)*
7. **Issues and Lessons learned**
    - *Operational issues and lessons (related to the project itself)*
    - *Developmental issues and lessons (related to the social consequences of the project)*
8. **Conclusions and recommendations**
    - *Conclusions (facts)*
    - *Recommendations (future)*

Annex 6.3 Memorandum on Project Evaluation

CDC Paper No.

Memorandum
on
Project Evaluation
on
Project:( )
submitted by
(Agency)
for
Cabinet Development Committee

Salient Project Features

Project Objectives(s):
Original Capital Cost Approval:
Latest Capital Cost Approval: (date)
Original External Funding Approved:
Latest External Funding Approved: (date)
Original IRR[15]:
Latest IRR: (date)
Donor:

Issues:

The Memorandum is an assessment of the project evaluation report prepared by the Executive Agency. The Memorandum to be prepared by EPPD and submitted to CDC for consideration.

15 if costs and benefits can not be described in financial and/or economic terms, benefits and costs to be elaborated on within the concept of project cost-effectiveness).

Appendix 1 Format for Consultancy Terms of Reference

1. Introduction

- *Explain the reason for carrying out the study/consultancy assignment*
- *What is the nature of the assignment*

2. Objectives of the Study

- *Details of the key objectives of the assignment; why is the consultancy required*
- *Quantify the nature of the outputs and recommendations expected e.g.; detailed feasibility study with economic /financial returns; technical designs and specifications, draft legislation, institutional framework, operational manuals etc.*

3. Background to the Project, Sector or Issue

- *Short history of the sector and the issues to be studied*
- *Current situation affecting the sector/issues*

4. Issues to be Studied

- *An outline of the main issues to be studied (this is the central part of the TOR as it sets out what the consultant is expected to do.*
- *The Consultant should be encouraged to elaborate on additional important items as they may arise in the course of the study.*

5. Plan of Work

- *The methodology and the approach of work could be outlined although this is normally the duty of the Consultant to elaborate on his/her proposed approach to complete the assignment. This would provide a guidance to negotiate the final methodology on how the Consultant should proceed with the work*
- *The same approach should be applied to field studies or surveys required*

6. Expertise required

- *The range of consultancy skills required should be outlined*

7. **Reporting**

- *Responsible agency for guiding study and monitoring progress(Project Co-ordinating Committee)*
- *Time frame of the study, reports and other supporting documentation to be produced*
- *Reference made to relevant reports and formats given in Manual on PPP.*

8. Conflict of Interest

- *Possible conflict of interest to be elaborated upon as appropriate.*

Appendix 2 Techniques for Feasibility Study Preparation

Market Research and Analysis

General

Market research and analysis should be carried out for the following main reasons:

- to establish whether the goods and services to be provided by a new productive unit are required by the community (the demand), and
- to estimate the volume which it would wish to acquire at given prices

There can be no discussion of profitability or of the other aspects of the feasibility study if there is no demand for the product. Therefore, the market study should include the following elements:

- determination of potential demand for the project's output and the volume at given price range
- target group
- time frame for the demand

This study would be relevant both to projects which produce "marketable" goods and services (commercial products) as well as to those which do not, such as schools, hospitals, roads and the like. In the latter case, which are termed broadly as social goods and are supplied 'free' (due to the absence of a market price), it is more difficult to estimate the volume of demand. This, however, does not mean that a needs analysis can be ignored[16].

Steps in a Market Analysis

Market analysis is sometimes conducted prior to a full feasibility study if this parameter or variable is considered very significant to the success or failure of the project. It is only after completion of this study that subsequent aspects in the feasibility study can follow.

The market analysis should seek to determine the following aspects:

- the size, nature and growth potential of total demand for the product
- the supply situation and the nature of competition
- the description and price of the product to be sold
- the different factors affecting the market
- the appropriate marketing programme for the product

Demand in Project Study

The analysis of the demand is to identify the needs of the consumers and determine whether they are willing and have the capability to pay for a given product.

The size, nature and growth of total demand for a product may be determined as follows:

- who and where is the market?

16 in case the quantitative assessments of the benefits are considered unreliable, a cost-effectiveness analysis may be carried out (Section 4.2)

- segmentation of the market according to type, manner of use, income classification, location, age, etc. the manner of segmenting the market would depend on the type of product being considered.
- what is the total domestic demand from the historic point of view?
- is there a foreign market, past trends, future projections, competition and comparative advantages.
- evaluate demand growth patterns in the past and project future demand by applying appropriate projection methods.

Supply

The supply situation may be determined as follows:

- who and where are the direct competitors? Classify them according to size, product quality, location, performance and market segment performance. Are there only a few big firms producing the product being considered (oligopoly or cartels operating)? Are there many small firms with no single firm controlling the market? Or is it an industry of big and small firms? The type of competition in existence would influence the decision on production capacity and marketing strategies.
- determine historical domestic supply as comprised by local production and imports.
- if there is a foreign market, determine the historical supply patterns in the targeted countries as comprised by their local production and imports.
- evaluate supply growth patterns and project future supply by applying appropriate projection methods.

Demand-Supply Analysis

Once the data on demand and supply situations have been established, the following analysis is carried out:

- compare the demand and supply trends
- determine the unsatisfied amount of demand
- if demand appears to be fairly satisfied by supply, consider
  - $\Rightarrow$ whether the factors affecting the market may disrupt the equilibrium so as to cause demand to grow faster than supply
  - $\Rightarrow$ whether the quantity of the product is such that it may create additional demand or redirect part of the existing demand in its favour
- determine the market share using the proposed production volume (as determined in the technical analysis) as against the total market size
- conduct a price study
- identify other factors affecting the market
- draw up a marketing plan

Product Description and Price Study

In addition, the following are taken into consideration with regard to product description and price study:

- name of the product
- properties of the product (physical, chemical, etc.)
- uses of the product (as finished product, intermediate goods)
- major users of the product (individuals, firms etc.)

In economic theory, the price is determined mainly by the demand-supply situation. An increase in demand with supply constant will normally lead to increase in prices. The reverse would result in the lowering of prices. Without any change in demand or supply, prices may go up if the cost of inputs such as raw materials rise, or prices may decline if the Government decides to subsidise production. Keeping all these in mind, the price study may be conducted as follows:

- determine the selling prices of all similar and substitute products
- what is the historical pricing of these products (including the range and fluctuations) and establish the factors that will influence their fluctuations over time
- determine the responsiveness of demand to price changes
- establish the product's selling price

Factors affecting the Market

There are certain factors affecting the market that may be quantified or predicted:

- demand may be significantly affected by population growth, income changes, taste, rural/urban development, prices of substitute and complementary products, and marketing techniques such as advertising, promotions, credit policies etc.
- supply may be influenced by the development of substitute products, the entry or exit of firms from the market place, sources and costs of production, government policies, technology, availability, etc.
- prices may be affected by production costs, price controls, inflation, price of substitutes, etc.

Marketing Programme

The final aspects of a market analysis would consist of a comprehensive marketing programme as follows:

- Determine the types of marketing programme prevalent in the particular business sector and gauge their respective effectiveness
- Draw up a marketing plan that identifies and defines the target market, the selling price, the packaging, the distribution network, the sales management mechanism and promotion activities. The important components of the marketing programme may best be summarised by the '4-Ps' i.e. product, price, place (distribution) and promotion
- Design the marketing organisation which will implement the plan and determine the costs.

Conclusion

As in other studies, that of the market includes two stages: the collection of data and the establishment of empirical basis for their elaboration and analysis. Data collection is part of identifying the needs of consumers and determining whether they are willing and have the capability to pay for the products. In forecasting demand, it is necessary to take into consideration not only production and import figures of the past, but also such other factors as credit availability, income distribution, population growth, price variations, age composition, degree of urbanisation, taste and preferences, money supply, GDP etc. Thus, the analysis

and elaboration stage will involve analysing both macro economic variables, i.e., economic data that add up the activities of consumers, firms, government and the import-export sectors; and microeconomics variables, i.e. data on the level of the individual firm or at least on the level of an industry grouping. It should answer the fundamental questions of the study:

- how much can be sold? i.e. who and where is the market (total domestic demand and/or foreign market)?
- at what price?
- what are the marketing problems of the product? (direct/indirect competitors, growth patterns etc.).

Technical Analysis

General

Technical analysis is used to establish whether or not a project is technically feasible and to provide tentative alternatives to achieve the project's objectives. It is an attempt to determine the following:

- how well the technical requirements of the project can be met i.e. a discussion of issues such as
  - ⇒ appropriate technology
  - ⇒ transfer of technology
  - ⇒ skills (management and technical);
- which location would be the most advantageous, and
- what would be the optimum size of a plant

Steps in Technical Analysis

The technical feasibility analysis should consider various aspects and alternatives of a project as follows:

- preliminary research and testing;
- selection of the production process (use of appropriate technology, labour intensive, capital intensive etc.);
- specification of operating and assembly equipment;
- location, buildings and site layout;
- plant layout;
- supplementary engineering works;
- efficiency;
- flexibility of productive capacity;
- work schedules;
- size of the project;
- organisation and management

Preliminary Research and Testing

Most engineering projects require a certain amount of preliminary tests and research. These tests cover widely varied matters: simple strength tests of the site for the construction of buildings: laboratory or pilot plant tests of the possibilities of using certain raw materials or processes, and the conditions under which such uses will be possible; experiments with new crops; metallurgical research into the treatment of ores, etc.

The project itself need only contain a clear summary of the information regarding these tests and research; the complete text of the respective reports may be attached as appendices.

Selection and Description of the Production Process

In many cases there may be no problems regarding the production process or system, but in others complexities and alternatives arise which should be explained together with the solutions offered, in relation to the preliminary research. To provide clarity and better presentation, the process can be described by the use of simple drawings or flow diagrams.

Selection and Specification of Equipment

There are two stages in the selection of equipment:

- choice of the type, in order to draw up the specifications for the tender
- selection between the various equipment of the type chosen in order to decide between the tenders.

Selection of the type of equipment will be influenced by the nature of the process, the scale of production and the degree of mechanisation, all of which are closely inter-related. It may often happen, for instance, that a certain degree of mechanisation is only applicable above a certain production level, and similarly certain processes lend themselves better to mechanisation than others. The type of production is thus related to the degree of mechanisation and automation.

The analysis of tenders for a given technology or engineering solution is not only a question of choosing the lowest tender in direct terms, but also entails other considerations such as:

- specifications or suitability for the type or raw materials
- minimum risk of obsolescence
- commitments for technical assistance and technology transfer
- alternative plant sizes/design flexibility
- maintenance and availability of spare parts
- cost factors and operating conditions

Sometimes the problem is further complicated by financial considerations relating to the nationality of the source of supply. Credit facilities, rate of interest, type of foreign currency required -convertible or not - and other considerations may also play an important part in the decision.

Location, Buildings and Site Layout

The technical feasibility analysis of a project depends largely on the proposed location as substantial differences usually exist in the availability, quality and costs of the various requirements in an alternative location. Projects whose technical requirements could have been well taken care of in one location sometimes fail because they are established in another place where conditions are less favourable. In other words, a project situated in a location that is remote from services and supply sources such as experienced labour force, market, raw materials, utilities and other requirements would be operating with disadvantages.

An engineering project should include estimates of the size and characteristics of the buildings required for production and site layout. For agricultural projects this might include animal shelters, barns, crop storage and similar buildings; for mines they will be the surface buildings for housing machinery, work-shops, etc. The problem acquires special interest in the case of manufacturing industry because the distribution of the industrial buildings has an important bearing on the handling and flow of raw materials, materials in process of manufacture and finished products.

Reception areas, stores, central workshops and other installations must be functionally situated in relation to the main factory building and transport services. The other important factor for consideration is availability of space for future expansion. This means adequate land with acceptable physical characteristics.

Plant Layout

The efficiency of a project such as a manufacturing operation depends to a great extent on the layout of the plant and equipment, since this can lead to economy in movement and the flow of material and processes thereby saving time and money. Some other factors which need attention in plant layout are:

- storage space for raw materials and supplies
- space for internal transport
- utilities service systems including waste disposal
- interdepartmental communication
- future expansion flexibility
- environmental considerations

Supplementary Engineering Works

Projects must often cover additional installations to supply the services needed for actual production or for the employees/persons who will work on the project. Consideration of these supplementary works arising from the project's technical requirements - industrial water, electric power and similar items - will be more exacting than in the case of those needed to serve the population.

The quality and quantity of the buildings for housing, camps and welfare services for example be more flexible since in this case the criterion will be both economic and social, and will vary with circumstances. A solution has to be sought which is reasonable in cost, but which will at the same time provide the minimum comfort required by the workers and employees.

This association of various supplementary projects with the principal or central project may be indispensable in the case of agricultural, mining or industrial projects, which because of their nature must be situated close to natural resources and far from urban centres.

Efficiency

Once the manufacturing method, the size of the plant and the arrangement of equipment and buildings has been decided, it will be possible to calculate the

volume of each type of input required by the project, both for installation and operation. Once the volume has been determined in physical terms, operating and input costs can be estimated. Moreover, this volume serves as a useful element of comparison when appraising the estimated administrative and operating efficiency of the enterprise.

The volume of input according to the physical processes employed, the quality of the available raw materials and the experience of other plants, can be estimated with the help of preliminary technical research. In addition to the purely technical factors, these estimates should also take into account the industry's general administrative and technical organisation and the quality of the labour available. This may lead to specific recommendations regarding the organisation and administrative structure of the enterprise, training, contracting of advisers, etc. It may be also necessary to have laboratories for the technical checking of raw materials, the actual production process and final products as part of the quality control in accordance with the required specifications.

Flexibility of Production Capacity

The need for flexibility in production capacity is at times a result of seasonal demand. At others, it may depend on temporary limitations in the availability of raw materials, or a tight financial situation, which means that production has to be started on a limited scale in first stage. Naturally there are limitations in the approach to these problems, but if the conditions mentioned should exist, solutions should be sought which will tend to facilitate harmonious growth and permit flexibility of operation with minimum drawbacks, interference and cost.

Work Schedules

The schedule of project implementation from project preparation through plant start-up and the identification of potential causes of delay is one aspect of technical study. There must be realistic schedules which not only include all activities from engineering design through land purchase/acquisition, construction and procurement, to testing of equipment and training staff necessary for the successful completion of the project. These schedules should be arranged in a coherent sequence. The estimates of realistic schedules in terms of timing and cost are drawn up from experience with comparable projects in the same or similar environment.

The work schedule in a manufacturing project must ensure that the entry into operation is synchronised with the arrival or availability of raw materials. Even if the raw materials are to be produced locally or by the plant itself, the scheduled arrival of material such as the concept of 'just in time' should be given serious consideration. Conversely, if some of the materials must be imported, the work schedule must include the placing of the orders abroad, the approval of necessary permits, transportation, so that their arrival will be synchronised with the entry into operation of the enterprise.

Size of Projects

The size of a project usually means its production capacity during a normal operating period. Owing to the need for provisions for operating flexibility to meet demand fluctuations, the normal output will seldom be 100% of the installed

capacity. Size is sometimes expressed in terms of the number of persons employed, the capital involved, or some other units. However, whatever unit of measurement this may be, the optimum size and the best location will be those which will lead the most flexible operating efficiency and to the most favourable financial result.

Some important factors in considering the size of projects are:

- the volume of demand to be met
- the relationship between size (or scale of production), the technology and investment
- the relationship between size and location or the geographical distribution of the market
- the problem between size and financing of capital resources for the project
- administrative experience and capacity

Conclusion

Since the technical analysis would cover both engineering and non-engineering aspects of a project, a checklist would definitely help a project officer in managing his/her varied tasks, even if a consulting firm has been appointed. The checklist would include those aspects that have been covered above and, amongst others, the examination of details such as technical description of the project, relevant project site characteristics and size, project implementation schedules, technical life of project, salvage values, availability of technical supporting staff and impact from the project.

Organisation and Management

General

This Section deals with the development and design of the organisation needed to manage and control the operation of the operational entity, and with the related overhead costs.

The aim of this Section is to describe the process of organisational planning and the structure of overhead costs, which can be decisive for the financial feasibility of the project. A division of the enterprise into organisational units in line with the marketing, supply, production and administrative functions is necessary not only from the operational point of view, but also during the planning phase, to allow the assessment and projection of overhead costs. Furthermore, it is essential for the feasibility of a project that a proper organisational structure should be determined in accordance with the strategies and policies of the operational entity.

The recommended organisation will depend on the social environment as well as on techno-economic necessities. The organisational set-up depends to a large extent on the size and type of the operational entity and the strategies, policies and values of those in a position of authority in the organisation. It should also be borne in mind that organisations are not static, but develop with the project (pre-investment phases, start-up and operation).

While other sections specifically deal with direct costs, this Section will deals with indirect or overhead costs. Past experience shows that many feasibility studies neglect or underestimate these costs which in some projects may have a significant

impact on their profitability. Considerations regarding the project organisation will help the analyst to identify and quantify these costs. The design and establishment of cost centres in line with the organisational structure will facilitate this task.

The Organisation

Organisation is the means by which the operational functions and activities of the operational entity are structured and assigned to organisational units, represented by managerial staff, supervisors and workforce, with the objective of co-ordinating and controlling the performance of the enterprise and the achievement of its business targets.

The organisational structure of an operational entity indicates the delegation of responsibilities to the various functional units of the entity, and is normally shown in a diagram, often referred to as an organigram. Usually, the organisation is designed primarily in line with the different functions in the operational entity, such as finance, marketing, purchasing and production. However, there is no unique organisation pattern. It is also possible to base organisational structures on products or production lines (for instance, profit or cost centres), or on geographical areas or markets; the latter are typical for marketing organisations.

The problem of structuring and organising the work and the delegation of executive responsibilities must not be seen only from the functional point of view, because various socio-cultural factors may militate against the mere copying of such organisations. This aspect is also very important when special organisational structures are required for the optimal use of imported technologies.

Organisational functions

The organisational functions are the building blocks of the organisational entity. As reflected in Figure 4.3.1, they may be grouped into the following organisational units in line with the specific requirements of the individual operational entity:

- general management of the operational entity
- finance, financial control and accounting
- personnel administration
- marketing, sales and distribution
- supplies, transport, storage
- production:
  - ⇒ main production unit
  - ⇒ service units
  - ⇒ quality assurance
  - ⇒ Maintenance and repair

Organisational Structure

The organisational structure of the company can take a number of shapes, the most common being the pyramid shape, which has the following three organisational levels:

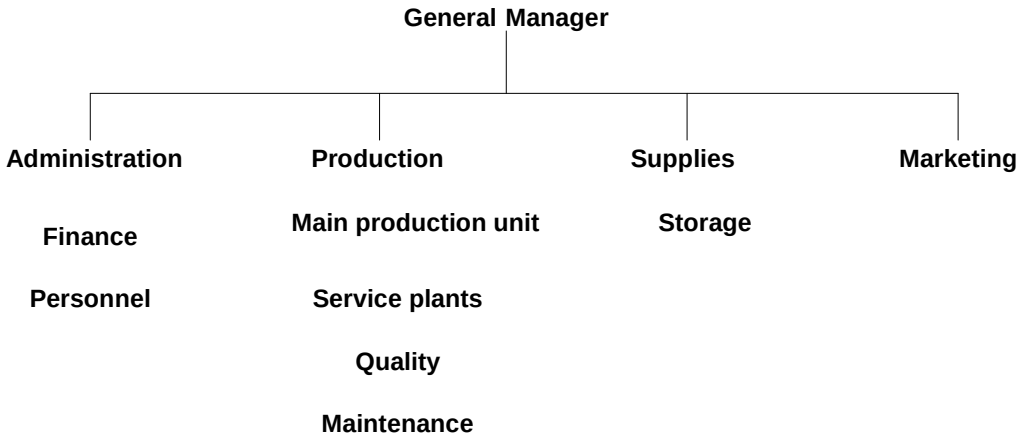
- top management, normally entrusted with long-term strategic planning, budgeting, co-ordination and control.
- middle management, normally entrusted with the planning and control of the organisational functions, such as sales, production, purchasing and finance.

- supervisory management that plans and controls the day-to-day operations and activities within the organisational units under its supervision.

Regardless of the type of manufacture engaged in by a plant, the analysts will need to consider the establishment of a number of cost centres that are common to most manufacturing companies. These cost centres are explained below in the section on accounting and financial control. Cost centres will be described in terms of:

- placement within the organisation
- operational purpose, responsibilities and authorities
- main tasks
- labour and skill requirements
- inputs and outputs

Figure A3.1. Example of an Organisation Chart for an Operational Entity.



Organisational design

A rough outline of organisational structures and of related costs may be included in a PIB, especially when organisational aspects could have a significant impact on the feasibility of a project. Usually the design of the organisational set-up of a project is covered in the feasibility study. The organisational design for both the construction (see section 5.3 Annex 4.1) and the operating phase depends on internal and external project requirements and conditions, and is prepared for the following two reasons:

- first, the organisation of the project and operational entity should aim at the optimal co-ordination and control of all project inputs. This makes it possible to implement the project strategies economically;
- secondly, the organisational set-up serves to structure the investment and production costs and to determine the costs linked with the corresponding organisational units. For accounting purposes these costs are treated as overhead costs, unless they can be directly related to a specific product or cost centre

The design of the organisation usually includes the following steps:

- the goals and objectives for the business are stated
- the functions that are necessary to achieve the goals are identified

- the necessary functions are grouped or related
- the organisational framework or structure is designed
- all key jobs are analysed, designed and described
- a recruiting and training programme is prepared

The result of the organisational design analysis invariably results in an organisational layout as shown in Figure 4.3.1. The organisational planner will then have to prepare the manning list for all organisational units in levels and categories of the personnel.

Other descriptive material may be included according to the local conditions and the way in which the operational entity functions.

Cost estimates

The manning tables prepared for each operational unit are the basis for estimating manpower costs. A distinction should be made between variable and fixed costs. There is a tendency to consider non-production labour costs as fixed and production labour costs as variable. This is generally too great a simplification, as most labour costs are semi-fixed or fixed in the short term. The feasibility study should provide information not only about the extent of these costs at certain production level, but also how they vary with production and over time. An identification of fixed and variable cost components as well as foreign and local currency components should be made.

The feasibility study should present the estimated labour costs for each operational unit and function. Underlying assumptions (such as average wages and salaries for different categories) should be presented. The costs should be divided into foreign and local currency components. When estimating the total wage and salary costs, provision should be made for the following personnel overhead costs:

- social security, fringe benefits and welfare costs
- installation grants, subsistence payments and similar cash costs that occur in connection with recruitment and employment
- annual deposits to pension funds
- direct and indirect costs of training
- payroll taxes

Environmental Impact Assessment (EIA)

General

Development in both the developed and the developing countries is very often accompanied by deterioration in the environment e.g. air and water pollution, erosion, salination etc. These deteriorations not only have a negative impact on the quality of life, but also incur costs for any corrective actions

Experiences of many developing countries have recently shown that this need not be so if environmental considerations are incorporated into the development planning process. To a large extent many of the environmental problems associated with development can be avoided or minimised through the adoption of preventive action. This is in contrast to early periods of development when concerns for the environment were generally lacking. Environmental Impact Assessment is essentially a planning tool to prevent or keep environmental

problems at acceptable levels. Environmental problems in the past have often resulted in additional costs for the rehabilitation and restoration of damaged area.

What is Environmental Impact Assessment?

Environmental Impact Assessment is generally considered as a planning tool which could assist planners in anticipating future impacts of a development project, both beneficial and adverse, with a view to maximising beneficial impacts and to mitigating adverse impacts on the environment.

The procedures for carrying out Environmental Impact Assessments are contained in EIA Regulations 1998. The responsibility of preparing a project EIA starts with the concerned line department/agency. Normally the EIA is a continuous process during project formulation so that project design parameters will be adjusted accordingly. This approach limits "unfriendly" environmental design parameters to be identified towards the end of the project formulation phase. An EIA report is then pre-paid towards the end of project formulation and enclosed the project formulation document.

The procedures as applied in this Manual consist of three major steps:

Step 1: Preliminary assessment of impacts due to the development of the project. The concerned line department/agency will obtain the preliminary assessment of ED at the project identification stage of the project idea

Step 2: Detailed assessment and the preparation of EIA for projects which have significant environmental impact predicted in the preliminary assessment.

Step 3: Reviews of Steps 1 and 2 above. The review of the preliminary assessment is carried out internally by a technical committee in the detailed assessment is reviewed by an ad-hoc Review Panel comprising multidisciplinary participation. The results and the recommendations arising out of a review is then transmitted to the relevant project formulation agency for incorporation (as appropriate) into the feasibility study and attached as a separate document to the Project Proposal report before the proposal is submitted to the CDC for consideration.

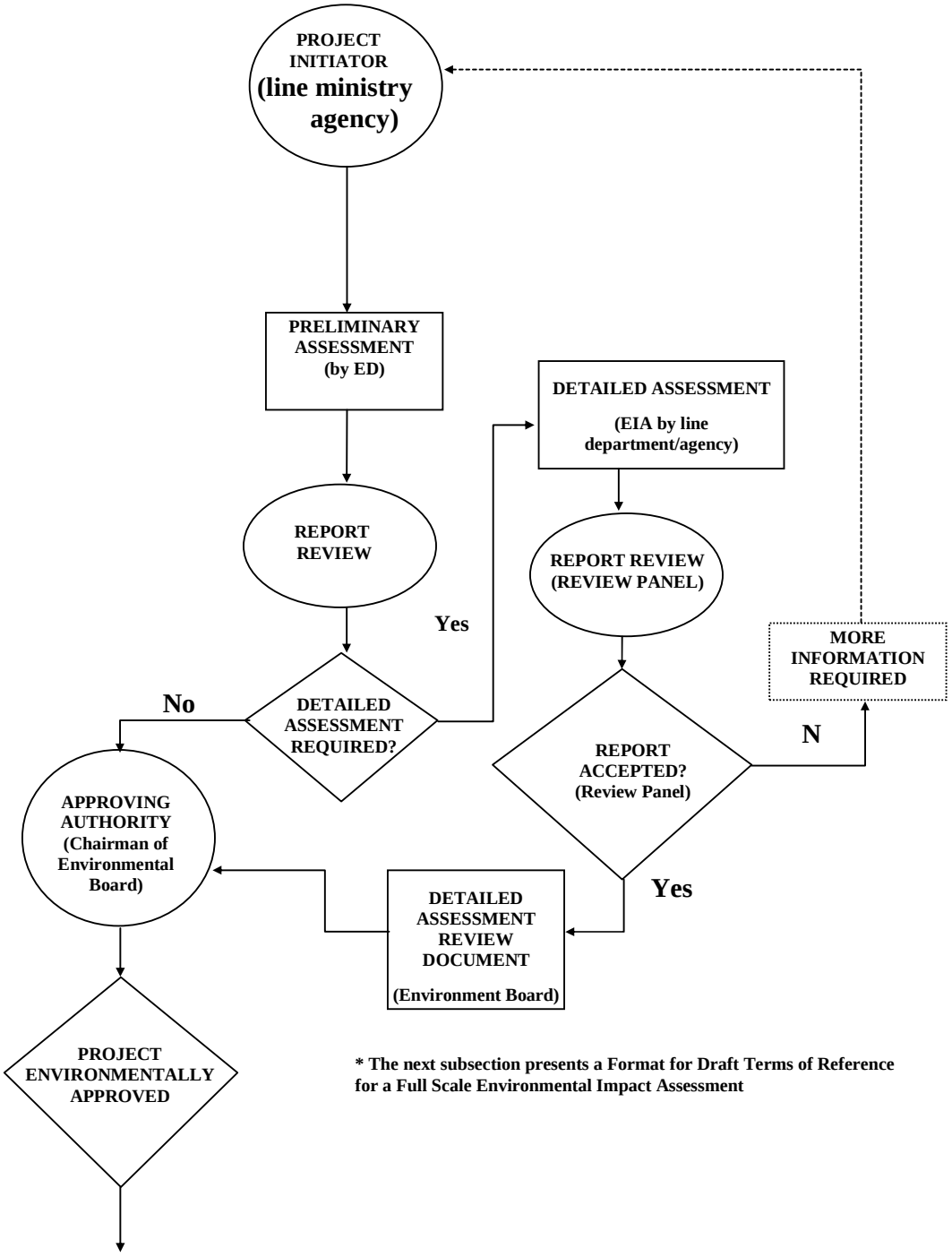
Activities Subject to Environmental Impact Assessment

Under the Planning and Urban Management Act 2004, Environmental Impact Assessments are required for "Development Proposals"[17] Under the Act, management plans for the protection, conservation, management and control of the national assets are drawn up. Activities which may be included under the Act could be, but not necessarily limited to agriculture, airport, drainage and irrigation, land reclamation, fisheries, forestry, housing, industry, infrastructure, ports, mining, petroleum, power generation, quarries, transportation, resort and recreational development, waste treatment and disposal, water supply, trade (and imports).

17 "Development Proposals" means any plan, proposal or intention by any person to embark upon any activity, scheme, construction, project, development or undertaking which involves or may involve the consumption of terrestrial, coastal or marine natural resources or ids likely to alter the environment in any way except for those activities explicitly excluded in writing by the Ministry of Natural Resources and the Environment.

The steps involved in the Environmental Impact Assessment are shown in Figure A3.2.

Figure A3.2: Outline of Environmental Impact Assessment Procedure[6]



Format for Terms of Reference (TOR) for a Full Scale Environmental Impact Assessment (EIA)

1. Project

Project title

2. Introduction

State the purpose of the EA and the contents of the TOR, describe the development project to be addressed and explain the arrangements for the EA.

3. Background

Provide the following background documentation:

- a brief description of the major components of the proposed project. A statement of the objectives it is intended to meet.
- the Executing Agency
- a brief history of the project (including alternatives considered) and its current status and timetable.
- identification of any associated projects, or projects in progress or planned, within the region which may compete for the same resources.

4. Objectives

The objective of the EA is to identify possible environmental impacts of the proposed project and to collect base-line information for future monitoring and evaluation of project activities.

5. Organisation of the Study

Identify the organisation structure for the EA

- who is to undertake the study
- who is to be consulted
- who is to review the recommendations from the study.

6. Environmental Assessment Requirements

According to the Lands, Survey and Environment Act of 1989, all major projects must be classified with respect to their possible environmental impact. This "project" has been classified as having significant potential environmental impact and should therefore undergo a full environmental assessment.

The EA should be prepared in accordance with the procedures for carrying out Environmental Impact Assessments, and be structured in such a way that it addresses both the environmental impact, mitigating measures and economic consequences of each of the identified overall issues.

7. The Consulting Team

The Team could consist of:

- an environmental consultant/Team Leader responsible for the EA report
- a natural resources management specialist

- a resources economist
- a sociologist/socio-anthropologist

8. Schedule

The Team is expected to use up to .....week(s) to prepare the field work, collect necessary documentation and present and discuss envisaged activities with the Review Board. The field work shall be implemented during a period of …..weeks.

The Team will have a period of …….total weeks for the preparation of the report, see item 14.

9. Study Area

Describe the study area.

10.Scope of the EA Study

The EA Study should cover, as a minimum, the following environment issues:

i) potential sources of impact from environmentally significant project components.
- project inputs:
- project activities.
- project outputs.

ii)potential sufferers of impact[18]

iii)potential environmental impacts.
- potential impacts.
- significance of impacts.

iv)potential mitigating measures.

11.Undertaking the EA Study

i) description of the proposed project.

Describe in general terms the components of the project which are likely to give rise to environmental concern.

Encompass, as a minimum, the project inputs, activities and outputs identified in item 10 i). Include a description of the following project factors:

- purpose
- location
- general lay-out
- size
- capacity

ii) description of the targeted environment.

Describe the surroundings of the project and the environmental baseline conditions (e.g. existing pollution or specially sensitive areas) against which the future impacts can be assessed, include changes anticipated before the project commences.

Encompass, as a minimum, the issues identified in item 10 ii)

iii) potential impacts of the proposed project.

18 all types of impact

Distinguish between significant positive and negative, direct and indirect, (primary and secondary) and intermediate and long-term impacts. Also identify those that are unavoidable or irreversible. Where possible, describe impacts quantitatively and assign economic values to the environmental damage.

Characterise the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impacts.

Identify the need for, e.g. survey, data collection.

Encompass those potential impacts identified in 10 iii)

iv) Significance of impacts.

Evaluate the significance of impacts with regard to the relevant environmental regulations, standards and human values governing environmental quality, health, safety and welfare of those likely to be affected, protected areas, protected species, land-use control, etc. at international, national, regional and local level, and with regard to conflicts of interest with existing development.

Incorporate, as a minimum, the considerations identified in TOR 10 vi)

v) project alternatives.

Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives which would achieve the same objectives.

When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated.

Where possible, quantify the costs and benefits of each alternative, incorporate the estimated costs of any associated mitigation measures.

Include the alternative of not undertaking the project in order to demonstrate the environmental conditions without it.

vi) management plan to mitigate negative impacts.

Undertake the following:

- recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels
- estimate the impacts and cost of those measures, and of the institutional and training requirements necessary to implement them
- consider compensation to affected parties for impacts which cannot be mitigated
- prepare a management plan including proposed work programmes, budget estimates, schedules, staffing and training requirements and other necessary support services to implement the mitigation measure
- incorporate, where appropriate, those measures identified in Section 10

vii) economic evaluation.

Undertake an evaluation of the environmental impacts and proposed mitigation measures, with a view to one of the following:

- achieving specific environmental quality objectives at least cost
- analysing the optimum level of environmental damage reduction in relation to costs of mitigation

- evaluating the economic value of unavoidable environmental impacts so that such costs can be incorporated into the final economic appraisal

12.Institutional Needs to Implement the Mitigating Measures.

Review the authority and capability of institutions of local, provincial/regional and national level, and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental assessment can be implemented.

13.Environmental Monitoring.

Develop a detailed plan to monitor the implementation of mitigation measures and the impacts of the project during construction and operation. Include in the plan an estimate of the capital and operation costs and a description of other inputs, such as training and institutional strengthening needed to carry it out.

14.Inter-Agency and NGO/Public Involvement

Demonstrate the extent to which inter agency and NGO/public views were consulted, for example:

- Government led authority
- Department of Lands, Survey and Environment
- other relevant government agencies
- donor agency/agencies
- national and/or local NGO's representing environmental and community concerns
- the affected population

15.Report Structure

The report should be concise and limited to significant environmental issues. Organise the report as indicated below:

i) non-technical executing summary presenting recommended management, mitigation and monitoring measures envisaged to avoid, reduce or remedy significant adverse environmental effects, and unavoidable adverse environmental effects.

ii) description of the project comprising information on its purpose, site, design and size.

iii) summary of the environmentally significant project components encompassing a description of the impact

iv) receivers and principal environmental impacts and their magnitudes.

v) summary of the environmental significance of unavoidable adverse impacts and of introducing the recommended management and mitigating measures.

vi) presentation, on the basis of a number of alternatives, of the most favoured option for reducing potentially adverse environmental impacts. The institutional, managerial, technical and financial consequences should be stated, including monitoring or other requirements.

vii) the "Preliminary Draft Conclusions and Recommendations" of the Team, to be discussed with the Review Panel

viii) a preliminary Draft Environmental Assessment Report, written in English, shall be presented to the Review Panel not later than three weeks after the fieldwork has been completed. Within two weeks after receiving the comments of the Review Panel, a Draft Report to be submitted in 15 copies.

ix) upon receipt of comments from the Review Panel, a final Environmental Assessment Report (25 copies) shall be submitted within two weeks.

16.Background Documents

Background documents presently available are:

17.Signature of Chairman of the Environmental Board

18.Date

Appendix 3 The Logical Framework

Introduction

The logical framework is a planning tool which was developed in the 1970s and which has increasingly been adopted by major development agencies. Many donors today have made the adoption of the logical framework mandatory for the approval of aid-funded projects.

The driving force behind the design and development of the logical framework has been the experience made by development agencies that many aid funded projects have failed to reach the objectives and targets set out at the inception and formulation stages. Furthermore, many development agencies have found it difficult (in the process of implementing projects), to learn from past experiences in order to perform better in the future. Agencies have thus felt a need to develop a framework which approaches PPP in a more logical and structured manner and which allows revisions of a project as a project proceeds through the various phases of the project cycle. The logical framework does not replace the need to prepare project papers and documentation of each phase of the project cycle. The logical framework provides a more focused and logical approach to PPP for the purpose of improving the quality of the documentation and strengthen the focus of implementing the various project phases.

The application of the logical framework requires the project to be broken down into its core components with particular attention given to the assumptions and the indicators which will determine the success or failure of the project meeting its objectives.

Adoption of the Logical Framework

Concepts used in the Logical Framework

The purpose of formulating and implementing development projects is to induce changes which results are desired within the project environment and society at large. It is assumed that there is general agreement as to the anticipated and improved situation at the stage when project planning takes place. This will make it possible to agree upon the (overall) goal of the project.

Development projects do not exist in a social vacuum. It is important that the desired future situation is described in such a way that it is possible to check at a later stage to what extent the project has been successful in relation to the achievement of its objectives and the target groups.

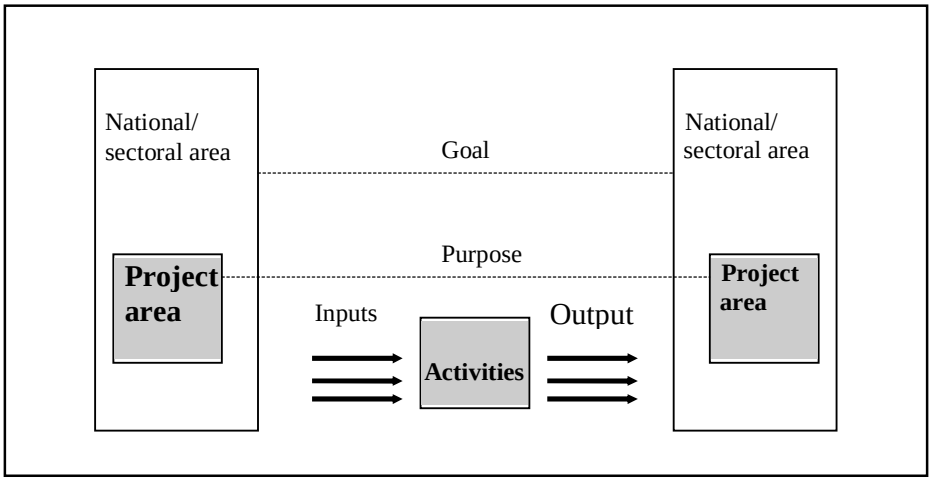
A development project is based on its input of resources, the implementation of certain activities which will result in a number of outputs. The outputs are expected to contribute to the desired objectives. Inputs, activities and outputs are elements of a project, but they are not in themselves a measure of success or failure.

The success of a project depends upon a number of factors which can be controlled by the project management as well as a number of external assumptions. During planning and implementation it is very important to identify, monitor and analyse

external assumptions as they may cause the project to fail even if the project is implemented as planned.

Figure A3.1 illustrates schematically the concepts used in the logical framework.

Figure A3.1: Concepts in the Logical Framework



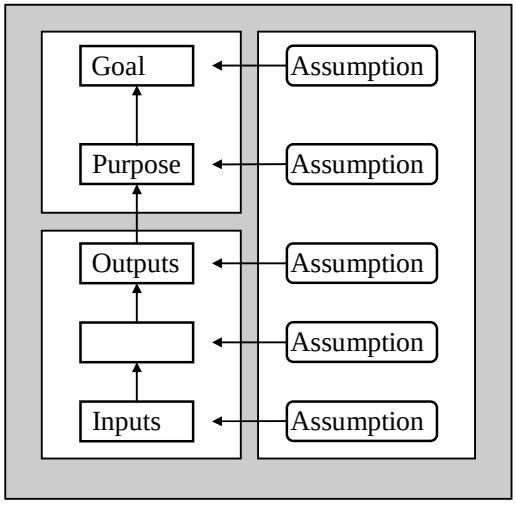
The Development Process

In the logical framework a development project is seen as a causally linked sequence of events. These are described at the levels mentioned above: inputs, activities, outputs, purpose and goal. As it is not certain that these events will actually happen, the process is regarded as a sequence of development hypothesis which can be analysed and described as illustrated in Figure A3.2.

While the certainty of the earlier hypothesis may be high as the results are largely under the management of the project, it diminishes at the higher levels. The uncertainties of the process are exposed as assumptions at each level. These are outside the direct control of the project, but have to be fulfilled for the development process to succeed.

The development process is summarised in a matrix, the Project Matrix (PMatrix) as shown in Figure A3.3.

Figure A3.2: The Development Process



It is assumed that:

- if the inputs are available, then the activities will take place.
- if the activities take place, then the outputs will be produced.
- if the outputs are produced, then the purpose will be achieved.
- in the long run this will contribute to the fulfilment of the goal.

The Elements of the Project Matrix

An actual PMatrix may contain additional elements. Usually a column expressing the project indicators or the project success criteria is added as a measure of the project reaching its development objective, the purpose and the outputs. The indicators specify how the achievement of objectives should be measured. In addition, columns can be added for means of acquiring data on indicators and key assumptions, as shown in Figure A3.3.

As shown the PMatrix illustrates the most important aspects of the project and the relationship between the activities and the outputs in a logical format.

It is important to note that the initial formulation of a project in a logical framework is only the first step in the logical framework process. As the project proceeds through the project cycle it is essential that the logical framework is periodically revised with a focus on the project reaching its objective(s) in a sustainable manner. The reason for this is that as the project proceeds through the project cycle, there is a general enhanced and improved understanding of the nature of the problems to be solved for the project to reach its objective(s) and goal.

Furthermore, with the passage of time the project environment and the assumptions laid down initially may change. This ongoing revision of the project may therefore lead to adjustments being made to the project purpose, the project outputs and the project activities. The logical framework should not be considered a static tool carried out at the inception of a project, but a dynamic tool applied to each phase of the project cycle to assist the stakeholders in reaching the ultimate objective(s) and goal of the project in a sustainable manner.

Figure A3.3: Description of Each Element in the Project Matrix.

Date of Preparing the Framework Matrix:

Project Title:

Project Description:

	Project Structure	Indicators of Achievement	How Indicators can be Quantified/Assessed	Key Assumptions
National or Sectoral Objectives	National or Sectoral constraints which the project is designed to overcome.	Quantitative measures or qualitative means of assessing if these objectives will be achieved.	Existing information sources or new sources which can be accessed or provided in a cost effective manner.	External conditions necessary for the objectives to contribute to the national/sectoral objectives. Risks considered. Conditions attached to funding availability.
Project Purpose	Intended immediate effects on project area or target group. Expected benefits (or disbenefits) and beneficiaries. Other changes resulting from the project such as environmental, social, cultural.	Quantitative measures including internal rate of return or cost-effectiveness indicators. Qualitative assessment of achievement and distribution of effects and benefits.	Information sources which already exist or can be provided in a cost effective manner. Specific provisions for collection of required information as part of the inputs and outputs, impact assessments, surveys.	Externalities and other factors outside the control of the project which can affect the progress. Outputs to the achievement of the Objectives. Risks. Conditions attached to funding availability.
Results	Outputs (nature, quantity, quality and timing) to be produced by the project to achieve the Immediate objectives.	Quantitative measures e.g. kilometres of roads built, classrooms constructed, areas planted. Local staff and counterparts trained.	Information sources which already exist or can be provided in a cost effective manner. Specific provisions for collection of required information, surveys, impact assessments, project, monitoring reports.	External factors critical to achieving timing of expected outputs, timely availability of inputs, output demand conditions. Risks. Conditions attached to funding availability.
Activities	Financial resources, materials and equipment, utilities and services. Personnel. Provision on time and in required quantity and quality.	Quantitative measures, e.g. expenditure records, delivery according to project schedule. Training programmes.	Existing information sources. Project implementation and progress reports.	Decisions and actions outside the control of the immediate project managers e.g. policy measures, externalities. Risks. Conditions attached to funding availability.

Preconditions
Description of Preconditions

Benefits from the Adoption of the Logical Framework

The benefits from introducing and applying the logical framework can be summarised as follows:

i) as donor funding is increasingly conditioned to projects being presented (and processed) in logical frameworks, it will allow Government to identify and formulate projects in a logical framework before a possible donor is approached i.e. the Government will be a more alert and capable partner in finalising the initial logical framework. Furthermore, it will allow Government officials to take the lead in revising the logical framework as a project proceeds through the project cycle. It is expected that this will strengthen the confidence of the donor community as regards Government's capability to be in charge of its own development which eventually will reduce the effect of donor driven aid.

ii) the logical framework will assist Government officials to focus their thinking towards the solving of development issues in logical sequence. It helps to ensure that fundamental questions are asked and weaknesses are analysed, in order to provide decision makers with better and more relevant information.

iii) it guides systematic and logical analysis of the inter-related key elements which constitute a well-designed project.

iv) it improves planning by highlighting linkages between project elements and external factors.

v) it provides a better basis for systematic monitoring and analysis of the effects of projects.

vi) it facilitates common understanding and better communication between decision-makers, managers and other parties involved in the project.

vii) management and administration benefit from standardised procedures for collecting and assessing information.

viii) its use and systematic monitoring ensures continuity of approach when original project staff are replaced.

ix) as more institutions adopt the concept it may facilitate communication between Governments and donor agencies.

x) widespread use of the logical framework makes it easier to undertake both sectoral studies and comparative studies in general.

xi) applied as a dynamic tool, it will provide the stakeholders with a more focused and logical approach through the project cycle and eventually reach the project objective(s) and outputs in a resource effective manner.

xii) although the scope of introducing the logical framework in this paper is limited to PPP, it should be noted that the logical framework concept has a very wide application. In fact there are no limitations to the application of the concept as the logical framework is a problem solving approach which can be applied to all problem solving initiatives.

Limitations of Introducing the Logical Framework

The limitations of introducing the logical framework can be summarised as follows:

i) the success of introducing the logical framework will depend on the sincerity and the know-how as well as the organisational skills of the working group and the stakeholders in charge of the logical framework process. i.e. if the approach is applied half - hearted, misconceived or if the criteria are badly chosen, the logical framework will reveal contradictions and become counterproductive. The introduction and application of the logical framework as a dynamic planning tool requires a high degree of discipline and systematic approach as well as a completely new way of thinking.

ii) the use of the logical framework as an administrative requirement should be prevented and discouraged.

iii) rigidity in project administration may arise when objectives and external factors specified at the outset are over-emphasised. This can be avoided by regular project reviews where the key elements can be re-evaluated and adjusted.

iv) it is a general analytic tool and as such it is policy-neutral on such questions as income distribution, employment opportunities, access to resources, local participation, cost and feasibility of strategies and technology or effects on the environment.

v) it is therefore only one of several tools to be used during project preparation, implementation and evaluation, and it does not replace target-group analysis, cost-benefit analysis, time planning, impact analysis, etc.

vi) the full benefits of utilising the concept can be achieved only through systematic training of all parties involved and methodological follow-up.

Using the Logical Framework

The logical framework is a very powerful and dynamic planning tool. It should be used not only during initial planning of project formulation, but also used as a management tool during project implementation.

As a tool applied to each phase of the project cycle, the logical framework is a participatory approach as it encourages the involvement of all stakeholders. As such the process should be carried out in a multidisciplinary environment and include the main stakeholders in the constraints/problems solving initiative. Members of the logical framework team may not necessarily be familiar with the logical framework concept, but it is essential that the team is lead by a logical framework facilitator who can organise the logical framework thinking and provide guidance throughout the process. It may be an advantage that the facilitator is not familiar with the details of the topic area.

The following section provides a step-by-step approach in the application of the logical framework in which the PMatrix is the end result of the logical planning process. The PMatrix should then be used as a starting point for formulating the technical part of the project and the detailed plan of operations. As such it will serve as a major point of reference throughout the life of the project, particularly for implementation, monitoring and evaluation of the project.

The Logical Framework Step by Step

This section provides the following step by step approach to developing a logical framework (LF):

I. general framework of the LF workshop.
II. visualising techniques to be adopted.
III. LF step by step
    A. Step 1. Participation Analysis
    B. Step 2. Problem Analysis
    C. Step 3. Objectives Analysis
    D. Step 4. Alternative Analysis
    E. Step 5. Identifying Main Project Elements in the PMatrix
    F. Step 6. Identifying Assumptions in the PMatrix
    G. Step 7. Identify Indicators in the PMatrix
IV. the Project Matrix (PMatrix)

I The LF Workshop

The LF workshop is a major instrument for project planning and analysis. It can be organised in different ways.

In its simplest form it can be a brief, internal exercise carried out at an early stage for the purpose of deciding whether or not to continue planning the project. Or it can be more extensive, depending upon whether the project is new or ongoing; a simple limited concept or a complex integrated one.

The more extensive LF workshop would typically last from 6 to 12 days and preferably be carried out in the project area with participants from all parties involved.

Participants at the LF workshop would typically consist of representatives of affected/involved organisations and institutions and relevant specialists. Future co-operation is likely to be smoother and more productive if all those involved have developed the project design jointly and have agreed on the objectives.

Representatives of the intended beneficiaries should be involved, either directly in the workshop or indirectly through simplified workshops using adapted communication means where they can express their opinions and priorities.

The workshop should be facilitated by a LF specialist, but the facilitator should preferably be independent of the agencies and interested parties involved.

II Visualising Techniques

Visualisation is used in the LF workshop to make thinking, discussion and work process as efficient as possible. The visualising technique makes extensive use of coloured cards to display and analyse opinions. The main principle is that all contributions made by the workshop participants would immediately be written down on cards and pinned to the wall for everyone to see. In this way discussions are rationalised and deepened, and results are gradually improved.

Ten practical rules concerning the visualising technique are:

i) be positive: formulate all suggestions on the cards and avoid time-consuming arguments.
ii) only one statement per card, clearly written and brief.
iii) word the messages clearly and distinctly: Stick to facts, avoid speculation or stereotypes and unclear abbreviations.
iv) the facilitator helps the participants organise their suggestions, the cards and chairs the discussions.
v) a facilitator's involvement in discussions should be limited to aspects related to LF methodology. The facilitator should refrain from getting involved in substantive discussions.
vi) cards with general statements should be replaced by several more specific cards.
vii) statements can be changed or moved temporarily by the facilitator when requested by the participants.
viii) statements can be changed or moved permanently only when all the participants agree.
ix) if discussions become lengthy or unproductive, they should be temporarily discontinued. The team should then proceed with other aspects of the problem.
x) lines indicating causal relationships should not be drawn until the end of the session.

III LF Step by Step

A LF workshop focuses on key aspects of an existing problem situation.

The comprehensiveness of the planning exercise will be determined by the:

- amount of information available
- complexity of the problems to be handled
- number and capability of the participants

The point of departure for a LF workshop should be a paper describing current problems in the project area. Such information should be available to the participants before the LF workshop starts. Relevant information on the various interest groups, their needs, socio-cultural situation etc., should also be available.

The analysis is to be conducted in four consecutive steps, identifying the most direct and essential causal relationships followed by three planning steps in which the project is designed. These steps are summarised below and described in detail in subsequent pages.

ANALYSING THE SITUATION

Step 1. Participation analysis

Step 2. Problem analysis

Step 3. Objectives analysis

Step 4. Alternatives analysis

DESIGNING THE PROJECT

Step 5. Identification of Project elements in the PMatrix

Step 6. Identification of External factors in the PMatrix

Step 7. Identification of Indicators in the PMatrix

Step 1: Participation Analysis

Lack of knowledge among development planners about the people affected by development projects has proved to be the common cause of project problems. This has been evidenced in numerous evaluation reports and studies.

As the first step, therefore, a comprehensive picture of the interest groups, the individuals and institutions involved has to be developed.

Organisations, authorities at different levels and interest groups have different motives and interests. It is of fundamental importance to analyse the interests and expectations of the various participants both early on in the planning process and later during the implementation of the project.

A fundamental requirement of all development projects is that the objectives reflect the needs of the society and the interest groups which are likely to be affected by a possible development project in the area, positively or negatively, directly or indirectly.

In order to deepen the analysis, the individual participants in the workshop could be assigned to represent the positions of different groups during the working sessions.

Furthermore it is important that the participants in the LF workshop are able to agree on whose interests and views are to be given priority when the analysis of problems is carried out (Step 2). Relevant issues to have in mind are:

- which are the target-groups most in need of assistance?
- which target-groups should be supported in order to ensure positive development?
- what conflicts would occur by supporting given target-groups and what measures can be taken to avoid such conflicts?

Step 2: Problem Analysis
General

On the basis of available information, the existing situation is analysed i.e. the major problems are identified and the main causal relationships between these are

The mandate of the LF workshop may often be restricted to one specific sector, subsector, area, etc. In other cases the workshop is conducted in connection with one particular ongoing project.

It is important that all possible options remain open during the problem analysis. The aim at this early stage is to establish an overview of the situation. Later in the process, the perspective will be narrowed and deepened in order to prepare for the design of a project.

FORMULATE PROBLEMS

1. Identify existing problems - not possible, imagined or future ones
2. A problem is not the absence of a solution - but an existing negative state

Example:

No pesticides are available	Crop is infested with pests
Wrong	Right

3. Only one problem per card.

Identifying a Starting Point

Each participant writes down a suggestion as one focal problem i.e. describes what he/she considers the central point of the overall problem.

The theme guiding discussion and selection of the focal problem is the interests and problems of the interest groups, persons and institutions involved.

The workshop should then discuss each proposal and try to agree on one focal problem,.

If agreement cannot be reached, then:

- arrange the proposed problems in a problem tree, according to the causal relations between them,
- try again to agree on the focal problem on the basis of the overview achieved in this way.

If still no consensus is achieved, then:

- try brainstorming, role games or other decision-making aids,
- select the best decision, e.g. by awarding points, or
- decide temporarily on one, continue work but return to discuss the alternative focal problems.

Whenever possible, avoid formal voting to obtain a majority decision.

SELECT A STARTING POINT

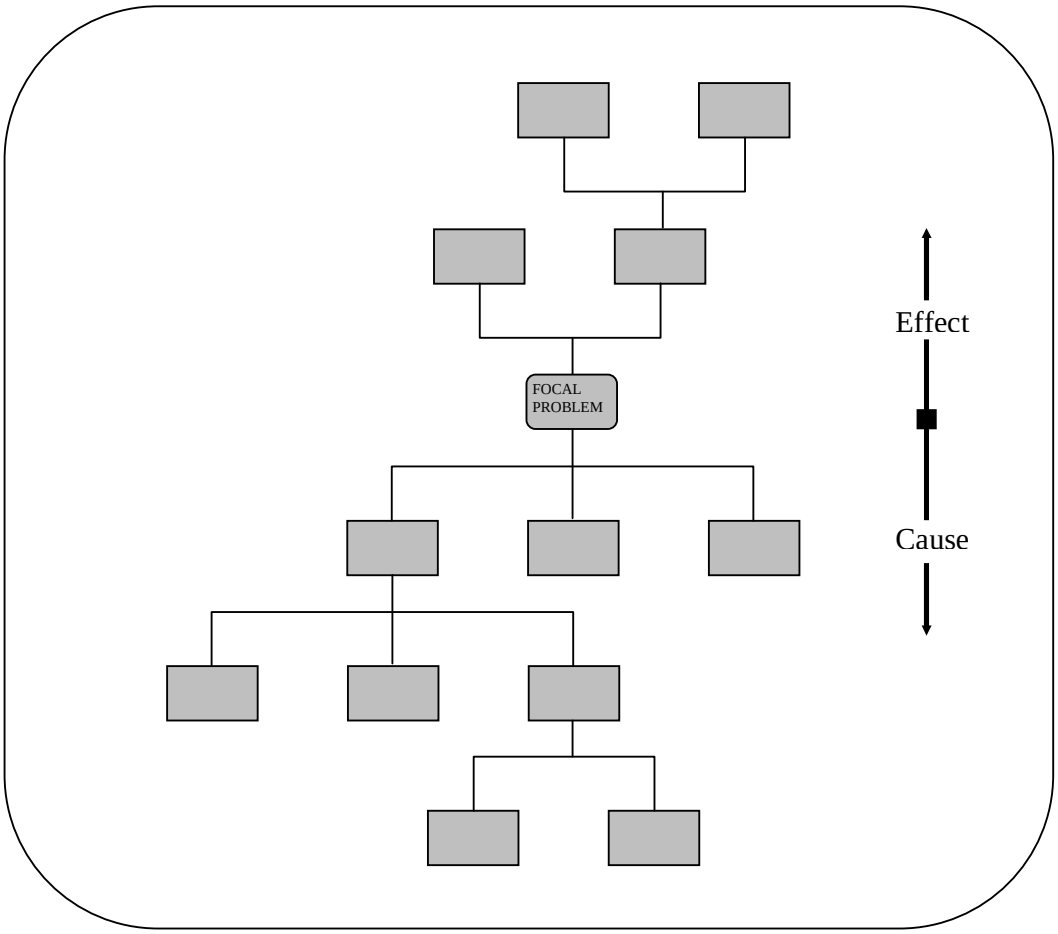
1. Identify major existing problems, based upon available information (brainstorming)
2. Select one focal problem for the analysis

Developing the problem tree

The substantial and direct causes of the focal problem are placed parallel underneath it.

The substantial and direct effects of the focal problem are placed parallel on the line above it.

Causes and effects are further developed along the same principle to form the problem tree.



The problem analysis can be concluded when the participants are convinced that all essential information has been included in the network in order to explain the main cause-effect relationships characterising the problem.

DEVELOP THE PROBLEM TREE

1. Identify substantial and direct causes of the focal problem
2. Identify substantial and direct effects of the focal problem
3. Construct a problem tree showing the cause and effect relationships between the problems
4. Review the problem tree, verify its validity and completeness**,** and make necessary adjustments.

Step 3: Objectives Analysis

Developing the Objectives Tree

In the objectives analysis the problem tree is transformed into a tree of objectives (the future solutions of the problems) and analysed

Working from the top downwards, all problems are reworded, making them into objectives (positive statements).

- the focal problem is similarly transformed into an objective and is no longer highlighted.
- difficulties in rewording may be solved by clarifying the original problem statement.

If the statements make no sense after being reworded from problems, write a replacement objective, or leave the problem unchanged. Check that meeting objectives at one level is sufficient to achieve the objective at the next level.

Problem: "if cause A, then effect B"
Objectives: "means X in order to achieve end Y"

Caution: every cause-effect relationship does not automatically become a means-ends relationships.

Finally, draw lines to indicate the means-ends relationships in the objectives tree.

DEVELOP THE OBJECTIVES TREE

1. Reformulate all elements in the problem tree into positive, desirable conditions.
2. Review the resulting means-ends relationships to assure validity and completeness of the objective tree.
3. If necessary:

   Revise statements

   Delete objectives which appear unrealistic or unnecessary

   Add new objectives where necessary
4. Draw connecting lines to indicate the means-ends relationships.

Step 4: Alternatives Analysis

Selecting the Alternatives

The purpose of the alternatives analysis is to identify possible alternative options, assess the feasibility of these and agree upon one project strategy.

Possible alternative means-ends branches in the objectives tree which could become possible projects are identified and circle. These means-ends branches constitute the alternative options.

Alternative options are numbered or labeled, e.g. “production approach”, “income approach”, “training approach”, etc.

Referring to the results from the participation analysis (step 1), the participants should then discuss the alternative options in the light of which target-groups would be affected by them and in which ways.

IDENTIFY ALTERNATIVE OPTIONS

1. Identify differing “means-ends” ladders, as possible alternative options or project components.
2. Eliminate objectives which are obviously not desirable or achievable.
3. Eliminate objectives which are pursued by other projects in the area.

Selecting the Most Viable Alternative

The alternative options should be considered in relation to the following criteria:

Total cost

Benefits to priority groups

Probability of achieving objectives

Social risks

The workshop participants should also agree on any other criteria to use when assessing the viability of the alternative options.

Possible criteria could be:

Technical:	Appropriate use of local resources, market suitablility, etc.
Financial:	Costs, financial sustainability, foreign exchange needs, etc.
Economic:	Economic return, cost effectiveness, etc.
Institutional:	Capacity, capability, technical assistance
Social/distributional:	Distribution of costs and benefits, gender issues, socio-cultural constraints, local involvement and motivation, etc.
Environmental:	Environmental effects, environmental costs versus benefits

The planning team should consider the different criteria in relation to the alternative options and make rough assessments, e.g. high/low, +/-, extensive/limited.

Based on these findings, the planning team should agree on one project strategy.

SELECT THE PROJECT STRATEGY

5. Make an assessment of the feasibility of the different alternatives.
6. Select one of the alternatives as the project strategy.
7. If agreement cannot be directly reached, then:

   Introduce additional criteria, or;

   Alter the most promisng option by including or subtracting elements from the objectives tree.

Step 5: Identifying Main Project Elements in the PMatrix

Once the project strategy has been chosen, the main project elements are derived from the objectives tree and transferred into the first vertical column of the Project Matrix (PMatrix) (see page?

Start at the top and work downwards

Decide on one development objective and one immediate objective

If necessary, reformulate the wording from the objectives tree to make them more accurate

The goal describes the anticipated long term objective towards which the project will contribute (project justification)

Note: There should be only one immediate objective.

The outputs are expressed as objectives which the project management must achieve and sustain within the life of the project. Their combined impact should be sufficient to achieve the immediate objective.

Note: While the project management should be able to guarantee the project outputs, the immediate objective is beyond their direct control.

Activities are expressed as processes. Avoid the detailing of activities, indicate the basic structure and strategy of the project.

All outputs should be numbered. Each activity should then be numbered relating it to the corresponding output.

Main inputs are expressed in terms of funds, personnel and goods.

DEFINE THE MAIN PROJECT ELEMENTS:

1. Goal
2. Purpose
3. Outputs
4. Activities
5. Inputs

Step 6: Identifying the Assumptions in PMatrix

Identifying the Assumptions

Assumptions describe conditions that must exist if the project is to succeed but which are outside the direct control of the project management.

Start from the bottom and work upwards.

Examine whether the inputs are sufficient to undertake the anticipated activities or whether additional events must also take place outside the project (assumptions).

Some assumptions can be drived from elements in the objectives tree which were not incorporated into the project.

Identify assumptions ate each level in the Pmatrix up to the development objective level.

Starting from the bottom, verify al all levels that the proposals follow logically from each other and are complete. Each level must contain the necessary and sufficient conditions for the next level above.

Make sure that the assumptions are described in such operational detail (with indicators if possible) that they can be monitored.

Examples of assumptions:

- fellowship recipients return to assigned positions
- local institutions collaborate in planning activities
- changes in world prices can be accommodated within given budget

IDENTIFY IMPORTANT ASSUMPTIONS

Assumptions:

1. can be derived from the objectives tree
2. are worded as positive conditions (see objectives)
3. are linked to the different levels in the PM
4. are weighted according to importance and probability

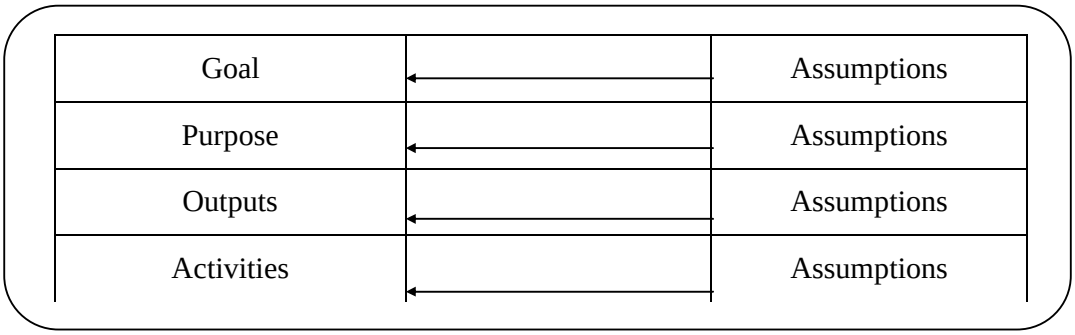
Checking the Assumptions

The significance of the assumptions should be assessed in order to indicate the chances of project success.

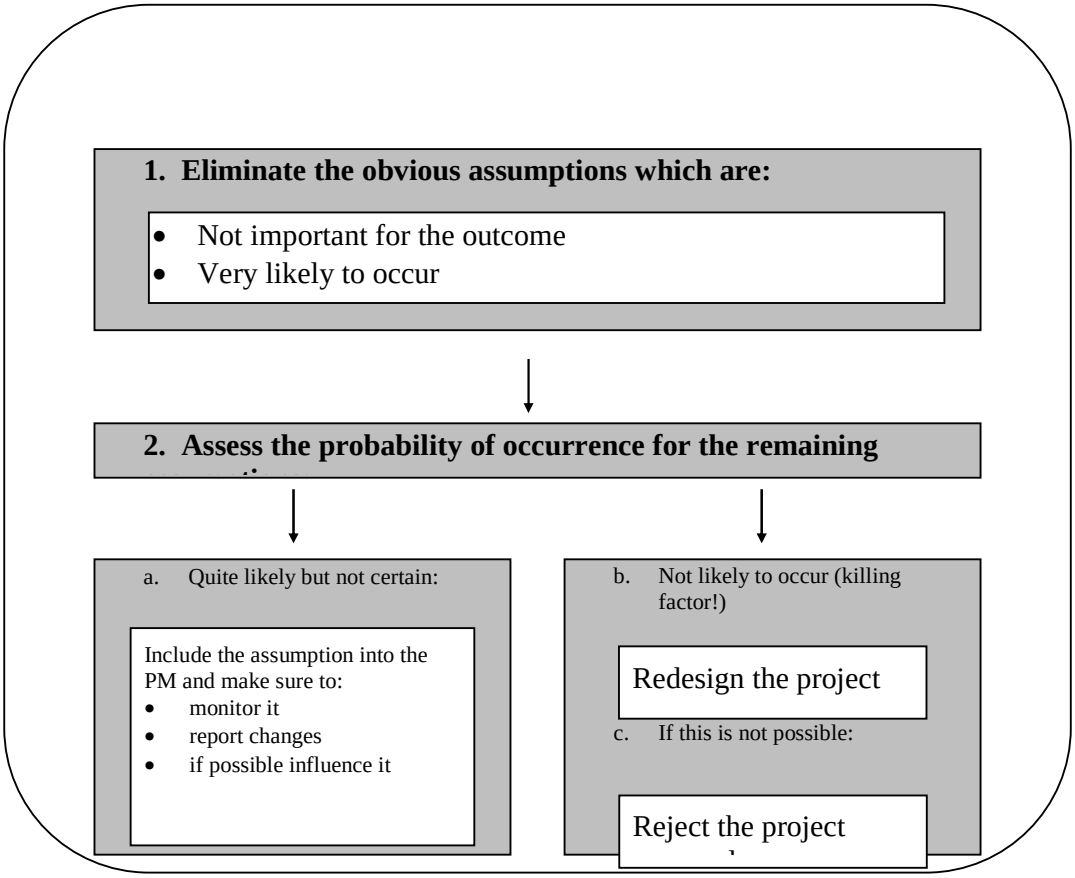
Go through the list of assumptions one by one at each level of the PMatrix and check its importance and probability.

Assumptions which are either very likely to occur or not very important for the outcome of the project should be deleted.

If the participant in the LF workshop determine that an assumption is both very important for the outcome but not likely to occur, then it is a killing factor. If killing factors are found, the project must either be changed to avoid these factors or the project must be abandoned.



Each level in the PMatrix must contain the necessary and sufficient conditions for the next level above.



Step 7: Identifying the Indicators in the PMatrix

General

Indicators are specified in the second column in the PMatrix.

The details of the indicators determine how we can measure to what extent the objectives have been achieved at different times. Measurements can be:

- Quantitative, e.g. kilometers of rehabilitated roads
- Qualitative, e.g. farmers co-operative functioning effectively
- Behavioral, e.g. increased use of sanitary facilities

Qualitative indicators should be made measurable as far as possible.

Direct indicators may need to be supplemented by additional indirect (proxy) indicators.

Example of direct and indirect (proxy) indicators:

PURPOSE	DIRECT INDICATOR	INDIRECT INDICATOR
Increase income of small farmers	Crop sales	• Purchase of typical consumer items • Tin roofs on house
PURPOSE	**DIRECT INDICATOR**	**INDIRECT INDICATOR**
Increase income of small farmers	Crop sales	• Purchase of typical consumer items

Several indicators are better than one. Single indicators seldom convey a comprehensive picture of change.

DEFINE HOW TO VERIFY THE ATTAINMENT OF OBJECTIVES

In the context of LFA, indicators specify the performance standard to be reached in order to achieve the goal, the purpose and the outputs.

Indicators should specify:

- Target group (for whom)
- Quantity (how much)
- Quality (how well)
- Time (by when)
- Location (where)

Formulating the Indicator

A good indicator is:

- substantial, i.e. it reflects an essential aspect of an objective in precise terms.
- independent, at the different levels. Since development and immediate objectives will be different, and each indicator is expected to reflect evidence of achievement, the same indicator cannot normally be used for more than one objective.
- factual, each indicator should reflect fact rather than subjective impression. It should have the same meaning for project supporters and to informed skeptics
- plausible, i.e. the changes recorded can be directly attributed to the project.
- based on obtainable data. Indictors should draw upon data that is readily available or that can be collected with reasonable extra effort as part of the administration of the project.

The measures provided by indicators should ideally be accurate enough to make the indicator "objectively verifiable" when different persons using the same measuring process independently of one another obtain the same measurements.

In the early planning stages in indicators are just guiding values with which to analyse the project concept. These guiding values must be reviewed again when the project becomes operational, and where necessary replaced by project-specific indicators.

FORMULATE THE INDICATOR

Objective: Increase agricultural production

1. **Identify indicator:**
   - e.g. increase taro yield
2. **Specify target group:**
   - male and female smallholders(cultivating 3 acres or less)
3. **Quantify:**
   - 500 smallholders increase production by 50%
4. **Set quality:**
   - maintaining same quality of harvest as 1989 crops
5. **Specify time frame:**
   - between October 1990 and October 1991
6. **Set location:**
   - target district

Checking the Means of Verification.

When indicators are formulated, the sources of information necessary to use them should be specified i.e.:

- what information is to be made available
- in what form; and
- who should provide the information

Sources outside the project should be assessed for accessibility, reliability and relevance.

The work and costs involved in any information to be produced by the project itself should also be assessed.

Indicators for which we cannot identify suitable means of verification must be replaced by other, verifiable indicators.

Indicators which, after consideration of costs and usefulness, are found to be too expensive, must be replaced by simpler, cheaper indicators.

Formulating indicators should include specifying their means of verification. In many cases it may be useful to add a column for "means of verification" to the PMatrix.

CHECK THE USEFULNESS OF THE INDICATOR

1. Is the information available from existing sources (statistics, records, etc.)?
2. Is the information reliable and up-to-date?
3. Is special data-gathering required?
4. If so, do the benefits justify the costs?

Avoid costly and/or unreliable indicators.

The Project Matrix (PMatrix)

The PMatrix marks the end of the LF workshop and summarises the elements of the LF analysis in a matrix as shown in Figure A3.3 above.