
UNIT 10 TOOLS AND TECHNIQUES

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10.0 OBJECTIVES

After studying this unit, you should be able to:

- explain the concept of project appraisal;
- discuss various financial and economic appraisal /evaluation techniques; and
- differentiate between discounted and undiscounted appraisal techniques.

10.1 INTRODUCTION

Resources available to any organization or society are limited and finite. Resources have infinite and multiple uses. Each organization/society, therefore, has to decide where it is going to use the resources available to it. Various sectors of the economy—manufacturing, agriculture, banking, services—compete for the resources.

Agro-socio-economic development requires enormous resources and efforts. It is essential to address the needs of the agrarian sector through developing both micro-entities and overall infrastructure. Development of micro-entities addresses the needs such as improvement in farming techniques, use of improved and better quality seeds and other inputs, and mechanization of the production process to ensure an increase in farm productivity. These projects are relatively small in size and require relatively fewer resources. The time required for the implementation of micro-entity projects is generally spread over one or two cropping seasons.

Overall infrastructure development includes projects like the development of roads, irrigation systems, support institutions for marketing agricultural produce, and financial institutions to provide requisite funds at a reasonable cost to undertake various activities to improve productivity and profitability of the agrarian sector. Multifarious development activities necessitate the adoption of a large number of projects. Since resources are limited and have multiple uses it is necessary to choose the best projects which offer maximum benefit to the individuals, areas, and the society at large.

The question is how do we select the best project? How do we compare various projects competing for limited resources and evaluate the relative benefits expected from these projects?

In this Unit, we will study various evaluation techniques used for the financial and economic appraisal of agrarian projects. The Unit will also discuss the relative merits of each of these evaluation techniques and the suitability of a particular technique in the assessment of specific agrarian projects.

The project is appraised from different aspects such as financial appraisal, technical appraisal, managerial appraisal, and socio-economic appraisal. In this unit, we will restrict our analysis to the financial appraisal of projects.

10.2 PROJECT APPRAISAL AND PROJECT EVALUATION

Every project has a start date and end date and also costs associated with it. At the same time, every project is expected to generate a stream of benefits in the form of enhanced productivity leading to higher profits generated over a period of time. It is worthwhile to invest resources in a project only if the project will generate additional profit above its initial cost. In case the sum of expected benefits from the project over time is less than the amount of investment made in the project it is natural to conclude that the project is not worth undertaking.

Often we are faced with a situation where multiple projects compete for our limited resources. To decide to which project to commit the resources, it is required to calculate the total costs and benefits expected from each project in monetary terms. Thereafter net expected benefits of all the projects are compared and the project offering the maximum benefits *vis-à-vis* its cost will be selected for implementation. Two terms - Project appraisal and project evaluation - are generally used interchangeably.

Project appraisal is an ex-ante analysis of a project before it is undertaken. At the appraisal stage, the expected cost and benefits of a project are estimated to decide whether or not it is desirable to start the project. Once a project is undertaken after project appraisal, the final actual cost and benefits of the project are compared with the estimates made at the appraisal stage to determine whether the project achieved the desired expected results or not. This ex-post analysis of the project after its execution is project evaluation. In effect, project evaluation is akin to a post-mortem report that provides useful insights into project planning and appraisal. Project evaluation helps us in identifying the errors committed at the estimates stage to help us take corrective action in the future when new projects are planned and appraised. Project evaluation determines real and actual benefits derived from the project and its effective cost.

10.3 OBJECTIVES OF PROJECT APPRAISAL

The fundamental objectives of project appraisal are:

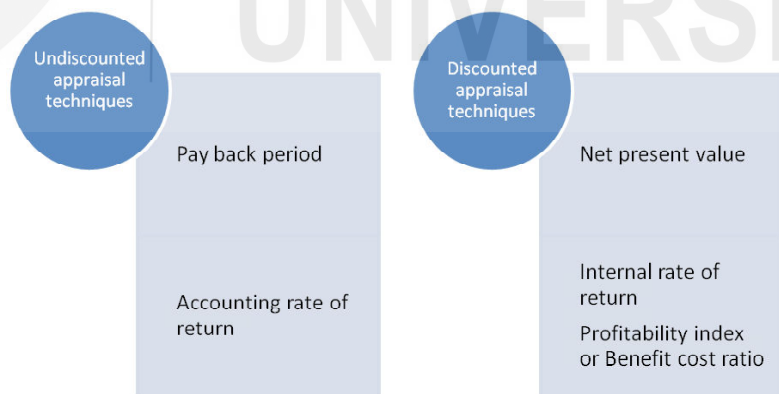
- To determine the future expected contribution of various competing projects;
- To determine various costs associated with proposed actions;
- To design a conceptual framework that helps in monitoring and evaluation of action; and
- Rational allocation of resources among competing projects.

10.4 ECONOMIC AND FINANCIAL APPRAISAL TECHNIQUES

Various techniques used in economic and financial appraisal can be classified into two broad categories.

- Undiscounted evaluation techniques or techniques based on estimation of cost and benefits without discounting the future streams of expenditure to be incurred on the project and income generated by it.
- Discounted evaluation techniques or techniques based on a calculation of cost and benefit after discounting the future streams of expenditure and income.

The primary prerequisite of all appraisal techniques is a determination of cash inflow and outflow associated with the project. Even though some qualitative factors such as egalitarian distribution of income, and improvement in the standard of living of the target group play a very important role in the selection of projects, it is not possible to assign a value to these desirable attributes in quantitative terms. We, therefore, restrict ourselves to consider only those costs and benefits associated with projects which can be quantified in monetary terms.



Check Your Progress 10.1

Note : a) Use the spaces given below for writing your answers.

b) Check your answer with those given at the end of the unit.

1. What is Project Appraisal?

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2. What is Project Evaluation?

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10.4.1 Undiscounted Appraisal Techniques

The followings are important undiscounted appraisal techniques:

- Payback period method
- Accounting rate of return method

Both these methods are easy to understand and simple to apply. These methods do not require a very high knowledge of mathematical or accounting skills on the part of the appraiser.

1. Payback period method or payout period:

It is a conventional method of appraising generally simple projects which do not involve huge investments. In this method time required to recover the initial investment in the project is calculated. The payback period is the length of time required to recover the investment.

In simple words, the payback period is the period required to recover the cost of initial investment through a stream of revenue generated by the project. In case the project generates the same cash inflow every year formula used to calculate the payback period is as under:

$$\text{Payback period} = \text{Total initial investment} / \text{amount of annual cash flow}$$

In case revenue generated by the project varies over the years, the payback period is calculated by adding the revenue over the years till the initial investment is recovered.

The shorter the payback period, the more desirable is the project.

Let us consider that we have two projects out of which only one project is to be chosen for implementation. These are:

- (1) To buy a tractor at a total cost of Rs 20 lakhs jointly by 20 farmers in a village. The tractor has an economic life of 10 years. The resale value of the old tractor at the end of 10 years is Rs 1 lakh. The tractor is expected to generate a net additional annual income of Rs 8 lakhs for these 20 farmers.
- (2) To set up a small irrigation system comprising the construction of a well and laying of pipeline to cover farms of 20 farmers. Once this irrigation system is set up it is expected to service these farms for 20 years. The initial cost of setting up this irrigation system is Rs 20 lakhs of which Rs 15 lakhs will be

spent during the first year and Rs 5 lakhs will be incurred during the second year. The operational cost of this irrigation system involves repair and maintenance of the well and drainage system and electricity consumed for drawing of water. The irrigation system is expected to generate a net additional annual income of Rs 6 lakhs from year 3 onwards for 20 years.

Let us now calculate the payback period for these two projects.

For first project (tractor) payback period = Rs 20 lakhs / Rs 8 lakhs = 2.5 years.

For irrigation system project payback period = Rs 20 lakhs / Rs 6 lakhs = 3.3 years.

It is seen from the above examples that the tractor project will generate revenue equal to its initial investment of Rs 20 lakhs in 2.5 years whereas the irrigation project will require 3.3 years to recover its initial investment. Using the payback period method clearly the tractor project having a shorter payback period is more desirable than the irrigation project.

Let us now consider the total additional income generated by the two projects. The tractor project is expected to generate additional income of Rs 80 lakhs (Rs 8 lakhs * 10 years) plus a residual value of Rs 1 lakhs i.e Rs 81 lakhs over its entire life. The irrigation project is expected to generate additional income of Rs 120 lakhs (Rs 6 lakhs * 20 years). Both the projects require a similar initial capital outlay of Rs 20 lakhs. While the tractor project will generate revenue of Rs 81 lakhs during its entire economic life, the irrigation project will generate Rs 120 lakhs. Will you still consider a tractor project better than an irrigation project? Obviously, your answer will be negative. Why did this happen? Why do you think this contradictory scenario has emerged?

This has happened because the payback period method of appraisal has not been considered.

- a. Total income generated by the project over its entire economic life. It has ignored revenue generated after the payback period.
- b. The total economic life of the projects.
- c. Profitability of the projects. It has only measured capital recovery and recovery period.
- d. Timing of actual investment and return. It has ignored the time value of money.

Despite these shortcomings, the payback period method is a quick way of appraising projects requiring simple calculations. This method is good for appraising small projects. It is also useful in the initial filtering of a large number of projects and helps in the quick ranking of projects.

2. **Accounting Rate of Return (ARR):** This method is also known as the Average Rate of Return. ARR method takes into account the total return expected from the project over its entire life and the average investment made on the project. Since accounting profit is used as a measure of return the method is also known as the accounting rate of return method. The method of calculating ARR is as under:

$$\text{ARR} = (\text{Average annual earnings} / \text{Average investment}) \times 100$$

Where average annual earning = total of anticipated annual earnings after

depreciation and tax divided by the number of years.

Average investment = total investment / 2

If there is scrap value, then

Average investment = (total investment – scrap value) / 2 + scrap value

In the case of additional working capital;

Average investment = (total investment – scrap value) / 2 + scrap value + additional working capital.

Decision criterion: Accept if ARR > or = to predetermined ARR or minimum desired rate.

ARR method uses available accounting profits. It does not use cash flow.

It is based on profitability and not liquidity.

It is difficult to determine desirable ARR objectively.

The method does not consider the actual size of investment and does not differentiate between projects with different levels of investment.

The method ignores the time value of money.

10.4.2 Discounted Appraisal Techniques

The payback period method acts as a hurdle for projects when the time span extends over more than one financial year and the time value of money needs to be taken into account. We have seen above that both the PB method and ARR method of appraisal suffered from one major drawback namely these methods did not consider the time value of money while calculating cost or return from a project. The undiscounted methods do not distinguish between two projects when the overall return is the same for both the projects but the time of receiving the revenue differs. Consider the following cost and revenue streams generated by two projects.

	Cost stream					Revenue stream				
	Yr1	Yr2	Yr3	Yr4	Yr5	Yr1	Yr2	Yr3	Yr4	Yr5
Project 1	8000					2000	2000	2000	2000	8000
Project 2	6000	2000				4000	4000	4000	2000	2000

Both the projects require the same initial investment (Rs 8000) and revenue generated through both the projects over five years, the life of each project, is the same (Rs 16000). However, on closer perusal, we shall notice that in project 2 initial cost of Rs 8000 is spread over two years while the entire investment in the project has to be made during the first year itself. Similarly, revenue generated by project 1 is back-ended i.e.; half of the total revenue is generated during the fifth year whereas in project 2 two-thirds of total revenue is generated during the first three years and is tapered thereafter. Apparently, project 2 is better than project 1. This is because the value of the rupee received today is not the same as the rupee received in the future.

Discounted cash flow method considers the opportunity cost of the project; comparison of return on investment in the project and its use in the next best alternative namely

interest that can be earned at a given rate of interest if money is deposited in the bank. Cash flow is discounted to determine whether or not the projected costs and benefits are going to yield the required result. The cost or cash outflow of a project is generally incurred in the first year or maximum within the first two or three years whereas benefits or income stream is generated over several years. It is not possible to compare today's cost with a future stream of income unless benefits are also reduced to present value. Therefore we use the Net Present Value method.

1. Net Present Value (NPV) method: The stream of future benefits or the cash inflow from the project is discounted at a required rate of interest (called the discounted rate or hurdle rate or cut off rate) to arrive at the present value using the following formula:

$$\text{Present Value} = C_n / (I+i)^n,$$

Where C_n is the future value of benefit n years hence and i = discounting rate.

The present cost is offset by the present value of a stream of benefits obtained from the project and is called net present value i.e. net present value = (present value of benefits) – (present value of costs).

DECISION RULE is Accept project if $NPV \geq 0$ at a given discount rate.

$$\text{Given discounting rate } NPV = A_0 + \text{SUM}_{t=1}^{t=n} (C_t / (1+i)^t),$$

Where,

A_0 = initial cash investment,

T = number of years,

C_t = net cash flow in t years,

i = required rate of return,

Cash flows are likely to be negative during the initial years of a project because of the initial investment. A project would be successful only if it generates sufficient positive cash flow during its economic life to exceed the initial investment. A project is acceptable if the sum of the net present value of all estimated cash flows over the life of the project is positive.

Formula for calculating NPV to include the impact of inflation is :

$$NPV (\text{project}) = A_0 + \text{SUM}_{t=1}^{t=n} (C_t / (1+i+p)^t)$$

Where, p is the predicted rate of inflation.

Suppose the initial investment is Rs 80000 with a net cash inflow of Rs 20000 per year for a period of five years, a required rate of return is 15 % and an inflation rate of 8 % per year is expected. NPV of the project is:

$$NPV(\text{project}) = (-)Rs 80000 + \text{sum}_{t=1}^{t=5} (Rs 20000 / (1+0.15+0.08)^t).$$

While, the NPV method is superior to undiscounted methods it has the following limitations:

- Data on cash flows associated with the project are not readily available from the financial statements of the company such as the balance sheet. It is to be

estimated. The success of the method depends on the degree of accuracy with which future cash flows can be estimated. It involves a high degree of uncertainty.

- It generally uses a fixed discount rate over an entire period which may give distorted results during periods of high volatility in interest rates. The method, however, has the flexibility to use varying interest rates for different years.
- It enables direct comparison between mutually exclusive projects.
- NPV calculation assumes that intermediate cash flows are reinvested firm's cost of capital.
- The selection of an appropriate discount rate plays a key role incorrect appraisal in this method.

2. **Determining the discount rate:** The question is how to choose a discount rate? Should the interest paid by the bank on deposits be taken as a discount rate? Or the interest rate at which the bank advances a loan for a commercial venture is a more appropriate choice? A business may have a pre-determined minimum expected return from its investments in mind. Should the discount rate be equivalent to this minimum required return? A project manager generally gets the discount rate fixed as a part of organizational policy. The following factors are taken into account while determining the discount rate.

A = the rate charged for the use of the capital

B = the rate due to inflation

C = a premium factor for risk-taking by the investor

3. **Internal Rate of Return (IRR) Method:** IRR is another related method used under discounted cash flow techniques. IRR is the discount rate for which NPV is zero. If A is the expected cash outflow in the period t and R is the expected cash inflow in the period t, the internal rate of return is the value of i that satisfies the following equation :

$$A_0 + A_1/(1+i) + A_2/(1+i)^2 + A_3/(1+i)^3 + \dots + A_n/(1+i)^n =$$

$$R_1/(1+i) + R_2/(1+i)^2 + \dots + R_n/(1+i)^n$$

The value of IRR is found by a trial and error method.

Initially, an arbitrary discount rate is chosen to calculate the net present value. In case NPV is positive, a higher rate of discount should be used and vice versa. This iteration process of selection is continued till NPV becomes zero.

The decision rule is to accept the project if $IRR \geq$ the cost of capital or the required rate of return.

IRR is better than the NPV method in the sense it does not select an arbitrary discount rate. Instead, the discount rate is calculated using the cash flows associated with the project.

IRR is difficult to compute manually. However, computer-based models available today have made this calculation very simple.

Advantages of IRR

- Considers the time value of money.
- Considers the cash flow stream over the entire life of a project.
- IRR is a true measure of the rate of return on capital and is more meaningful and acceptable to executives and financial analysts.
- IRR suggests the maximum rate that a project can earn whether the firm's cost of capital is given or not.
- Compatible with the corporate objective of maximizing shareholder's wealth.
- IRR assumes that intermediate cash flows generated are reinvested at the IRR of the project.

Disadvantages of IRR

- The results of IRR and NPV may be conflicting and inconsistent when:
 - Projects differ in their expected lives.
 - Projects differ in terms of cash flows.
 - Projects differ in investment outlays.
 - There can be multiple IRRs for the same project.

4. **Profitability Index:** Another useful tool in financial appraisal is the Profitability Index. It is the ratio of the present value of expected future benefits discounted at a required rate of return to an initial cash flow. This is also known as the benefit-cost ratio. The profitability index is calculated by using the following formula:

$$PI = (\text{Present value of cash flows}) / (\text{Initial Capital Invested}) = \sum_{t=1}^{t=n} \frac{C_t}{(1+i)^t} / A_0$$

Using this tool Acceptance Rule is stated as:

If $PI > 1$ accepts the project, if $PI < 1$ rejects the project, if $PI = 0$, then apply method IRR because NPV will also be zero.

Now that we have reviewed some techniques of project appraisal, let us get a Banker's perspective on Project Appraisal (Source: <http://www.shahistratagem.com/?p=1>).

10.5 APPROACH TO PROJECT APPRAISAL

A Banker's Point of View

A project is a plan. Limiting it to manufacturing units, a project is a plan to set up a manufacturing business. A manufacturing business is one that uses plant and machinery, manpower, and capital to process raw materials into finished goods. The finished goods are then sold, hopefully, at a profit. The sale proceeds are subsequently utilized to purchase more raw materials for conversion to more finished goods for more profit. And so the manufacturing cycle continues.

Appraisal means evaluation. Project appraisal, therefore, means the evaluation of a plan to set up a manufacturing business. If we substitute the term 'plan evaluation' for

‘project appraisal’, we achieve a much better understanding of what a banker should be doing in carrying out a project appraisal. The term project appraisal, by itself, appears to connote that the act of appraising a project is an end in itself. On the other hand, plan evaluation connotes that we look into each and every aspect of a plan to evaluate its chances of success. As soon as we begin to evaluate the chances of success of a plan we begin to look beyond mere appraisal to a future, long-lasting, and successful relationship. And this is precisely what a banker should be looking for in any new/existing relationship.

Obviously, for a plan to come into being there has to be a planner. This planner is popularly known as an entrepreneur. An entrepreneur, by definition, is a person who is willing to take the risk of investing cash today in a business in anticipation of an acceptable cash return in the future. Since the future can never be predicted with certainty, the entrepreneur faces a risk in making an investment.

It would be wise on the part of every banker to remember that in financing any project he becomes a major investor himself. A bank lends cash today to a customer to invest in his business in the anticipation of a cash return in the future in the form of interest, as well as the return of the principal amount. A bank, therefore, is also an entrepreneur in its own right. The difference is in the kind of assets he invests in, and that he invests someone else’s money, just as the borrower does when he takes a loan.

Once we accept that a bank is, in reality, an entrepreneur in every loan decision it takes, we must also accept that project appraisal, as generally practiced, is an inadequate tool for taking appropriate credit decisions.

The success or failure of a business depends on a complex set of factors. These include the state of the infrastructure, the government’s economic policies, the condition of the market the business is entering, the financial strength of the entrepreneur, his techno-managerial capabilities, and the degree of risk involved in the particular business/ market. Mathematically, this may be stated as:

$$P = f(I, G, M, F, T, R)$$

Where

P = Profit/Loss

I = Infrastructure

G = Government’s economic policy

M = Market condition

F = Financial strength of the entrepreneur

T = Techno-managerial capability of entrepreneur

R = Risk factor of the particular business/market

We can, of course, add to the number of variables to better approximate the real world and to further refine our mathematical statement. This would, however, make the banker’s work so cumbersome as to make it impossible for him to use it as a practical tool. The danger in too much simplification is that it may not represent anything even close to the real-world picture. However, if we treat infrastructure as a subset of

the government's economic policy, and the entrepreneur's financial strength as a mix of equity and loan (keeping in mind the debt: equity ratios stipulated by the Reserve Bank of India for different kinds of loans) the relationship may be restated as:

$$P = f[G, M, (E+L), T, R]$$

Where

P = Profit/Loss

G = Government's economic policy

M = Market conditions

E = Entrepreneur's equity

L = Entrepreneur's bank loan

T = Entrepreneur's techno-managerial capabilities

R = Risk factor of the particular business/market/state/country

Having arrived at a mathematical statement for plan evaluation, we now have to decide what weight should be assigned to each factor. Obviously, our choice will have a direct bearing on our evaluation. Assuming a normal distribution, we may restate our relationship as:

$$P = f[0.2G + 0.2M + 0.2(0.33/0.25E + 0.67/0.75L) + 0.2T + 0.2R]$$

Where equity: loan ratio depends on RBI directives for small/medium/large industries.

Clearly, these weights will vary from case to case, industry to industry, as well as from location to location, and government to government. They will also vary according to the size of the business and the equity-loan ratio as these have a direct bearing on the risk perception of the project. Generalizing our statement:

$$P = f[W1G + W2M + W3(E = 2/3L) + W4T + W5R]$$

Where W1, W2, W3, W4, and W5, are the weights assigned to different factors.

If the foregoing approach is adopted for project appraisal, we suggest that an attempt should also be made to assess the possible future returns and their standard deviations under varying probabilities and weights. Such an assessment should neither be difficult nor complicated, once we have arrived at reasonable weights for the basic factors we are assessing in project appraisal. It would also give us a better idea of the risk a bank would be exposed to in financing a particular project. If this new assessment of risk is considered in conjunction with the existing risk profile of the bank, it would enable us to consider the impact of our loan decision on the overall risk profile of the bank due to loan exposure. Taken to its logical conclusion, this exercise should lead us to a formulation of a statement of the risk limits a bank should arrive at about its loans portfolio so, that it can reduce the probability of a collapse.

As the concluding point, we need to know the format and content of a typical Project Appraisal Report. Here is an extract:

(Source: <http://ziaahmedkhan.hubpages.com/hub/How-to-Write-Feasibility-Report-and-Project-Appraisal-Report>).

10.6 FORMAT OF PROJECT APPRAISAL REPORT

A Project Appraisal Report should generally comprise the following components:

- 1) General Information
 - a) Name
 - b) Constitution and sector
 - c) Location
 - d) Nature of industry and product
 - e) Promoters and their contribution
 - f) Cost of project and means of finance
- 2) Promoters Details
- 3) Market Feasibility Report
 - a) Segments
 - b) Competition
 - c) Pricing
 - d) SWOT Analysis
 - e) Marketing and Selling Arrangements
- 4) Particulars of the Project
 - a) Product and Capacity
 - b) Plant and Machinery
 - c) Raw Material
 - d) Utilities
- 5) Technical Feasibility Report
 - a) Technology
 - b) Alternatives
 - c) New Developments
 - d) Competing Technologies
 - e) SWOT Analysis of technology
 - f) Technical Arrangement
- 6) Production Process
- 7) Environmental Aspects
- 8) Schedule of Implementation

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- 9) Financial Feasibility
 - a) Cost Details
 - b) Working Capital
 - c) Means of Finance
 - d) Profitability Estimates
 - e) Assumptions
 - f) Projections
 - i) Projected Income Statement
 - ii) Projected Balance Sheet
 - iii) Projected Cash Flow Statement
 - iv) Coverage Ratio's
 - v) Break Even Analysis
- 10) Economic Consideration
- 11) Appendices
 - a) Depreciation Schedule
 - b) Repayment, Interest schedule of the term loan, and bank finance
 - c) Working Capital and margin money for working capital schedule
 - d) Tax Computation
 - e) Details of Plant and Machinery
 - f) Requirement of skilled and unskilled labor
 - g) Cost of Project Details

10.7 ASPECTS OF PROJECT APPRAISAL

In the project appraisal the following aspects are examined:

- Market Appraisal
- Technical Appraisal
- Financial Appraisal
- Economic Appraisal

These aspects are discussed herein in detail:

1. **Market Appraisal:** The market appraisal is attempted to answer two important questions.
 - i) What is the size of the total market for the proposed product or service?
 - ii) What is the product's share of the total market?

To answer the questions market analyst compiles and analyses the data relating to the following aspect :

- a) Past & present trends
- b) Present and prospective supply position
- c) Level of imports and exports
- d) Structure of competition
- e) Price and cross elasticity of demand
- f) Consumer requirements
- g) Production constraints

2. Technical Appraisal: The following aspects are included in technical appraisal:

- i) Availability of the required quality and quantity of raw material;
- ii) Availability of utilities like power and water etc;
- iii) Appropriateness of the plant designs and layout;
- iv) The proposed technology vis a vis alternative technologies available;
- v) Optimality of scale of operations;
- vi) The technical specifications of plant and machinery in relation to the proposed technology; and
- vii) Assembly line balancing.

3. Financial Appraisal: It includes the following aspects:

- i) Cost of project
- ii) Means of financing.
- iii) Projected Revenue and cost.
- iv) Payback period.
- v) NPV
- vi) Rate of return.
- vii) Internal Rate of Return.

4. Economic Appraisal: It covers the followings:

- i) Impact of the project on the distribution of income in society;
- ii) Impact of the project on the level of savings and investment in the society and socially desirable objectives like self sufficiently, employment, etc.; and
- iii) Contribution to project.

10.8 PROJECT EVALUATION REPORT

The finishing of any project in business requires an evaluation of the end results. These include not only the products and services provided to the customer for profit but also

customer service and efficiency. In addition to the customer’s overall satisfaction, the company wants to know if the method of execution was timely and fruitful for all members of the team. These findings are often summarized in a written project evaluation submitted to upper management by lower management team leaders or by collaboration from several team members.

Step 1

Create an outline before putting pen to paper for a rough draft of the report. Divide your scratch paper into four segments. In the first section, write notes about the finished product. Answer questions such as, Did you deliver the finished product on time? Did your prototype work? Did your product meet specifications? Did you do all procedures legally? Was all paperwork filled out properly and submitted on time?

Step 2

In the second section, write down notes about customer relations. Were they satisfied with your product? Did you finish ahead of schedule, on time, or late? Do your customers know the members working on their projects? Did the customer need to call for updates or were they given regularly?

Step 3

In the third section, write down notes about the team and individual performance. Did all members of the team share work equally? Did all members attend all meetings? Did members take initiative? Does this group of team members work well together, and should they be recommended for future projects together?

Step 4

In the last section, write down notes about the project summary. Was it truly successful? What could be improved? What did the customer ask for that was not delivered? What constraints held you back?

Step 5

Construct a rough draft of the report, referring to the notes you wrote down in steps one through four. Proofread and edit before submitting. Add graphs and eye-catching charts to bring the reader’s attention to any figure showing progress or success.

For a sample Project Evaluation Report use the link:

http://www.unicef.org/french/evaldatabase/files/Egypt_2004_004_NGO_Cap_Bldg.pdf

Check Your Progress 10.2

- Note :** a) Use the spaces given below for writing your answers.
b) Check your answer with those given at the end of the unit.

1. What are two types of Project Evaluation techniques?

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10.9 LET US SUM UP

Resources are limited having alternative uses. There is a need to allocate limited resources among various competing projects.

A project appraisal exercise is undertaken to determine whether it is worthwhile to devote resources to a particular project over other projects and why?

The project appraisal techniques are broadly divided into two categories-undiscounted cash flow methods and discounted cash flow methods.

The discounted cash flow methods are superior and more widely used because these methods consider the time value of money while assessing the projects. This gives a more realistic comparison.

The undiscounted methods have an advantage in their simplicity. In a situation where a large number of competing projects are to be appraised, simple undiscounted cash flow methods are used for initial filtering. Thereafter more detailed methods of discounted cash flow are applied. In real life, more than one method is used simultaneously to make a final decision.

10.10 KEYWORDS

Discounted evaluation Techniques : Techniques based on the calculation of cost and benefit after discounting the future streams of expenditure and income.

Project Appraisal : Analysis of a project before starting the project.

Project Evaluation : Analysis of a project after it is executed.

Undiscounted evaluation Techniques : Techniques based on estimation of cost and benefits without discounting the future streams of expenditure to be incurred on the project and income generated by it.

10.11 FURTHER SUGGESTED READINGS / REFERENCES

1. Harvey Maylor, Project Management, Pearson Education.
2. Jack R. Meredith & Samuel J. Mantel, Jr., Project Management, John Wiley & Sons.
3. P.C.K. Rao, Project Management and Control, Sultan Chand & Sons.

10.12 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 10.1

1. Project appraisal is an ex-ante analysis of a project before it is undertaken. At the appraisal stage expected cost and benefits of a project are estimated to decide whether or not it is desirable to start the project.
2. The ex-post analysis of the project after its execution is project evaluation. In effect, project evaluation is akin to a post-mortem report that provides useful insights into project planning and appraisal.

Check Your Progress 10.2

1. (a) Undiscounted evaluation techniques or techniques based on estimation of cost and benefits without discounting the future streams of expenditure to be incurred on the project and income generated by it and (b) Discounted evaluation techniques or techniques based on the calculation of cost and benefit after discounting the future streams of expenditure and income.
2. In this method, the stream of future benefits or the cash inflow from the project is discounted at the required rate of interest (called the discounted rate or hurdle rate, or cut off rate) to arrive at the present value using the following formula:

Present Value = $C_n / (1+i)^n$, where C_n future value of benefit n years hence and i = discounting rate.

The present cost is offset by the present value of a stream of benefits obtained from the project and is called net present value i.e. net present value = (present value of benefits) – (present value of costs).

10.13 UNIT END QUESTIONS

1. What are the objectives and the scope of project appraisal?
2. What factors have to be considered while appraising a project? Explain with an example.
3. What are methods of project appraisal? Differentiate between discounting and non-discounting methods using examples?
4. Write short notes on: Payback, Average Rate of Return, Net Present Value, Internal Rate of Return, and Profitability Index.
5. In a capital rationing situation (investment limit Rs.25 lakhs), suggest the most desirable feasible combination on the basis of the following data (indicate justification). Projects B and C are mutually exclusive..... (Source: ICWAI, Final (IV), Dec. '95).

Project	Initial outlay Rs in lakhs	NPV Rs. In lakhs
A	15	6
B	10	4.5
C	7.5	3.6
D	6	3