“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi
INTRODUCTION TO THE PROJECT

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Welcome to the course on Project Analysis. This, a four credit course, is one of the components of PG Programme in Agriculture Policy. After going through this course, you should be able to:

- describe the importance and role of projects in developmental process among various stakeholders of agriculture policy formulation and implementation process;
- identify the projects based on the high priority in the national development programme;
- discuss the financial, economic and other aspects of project preparation and analysis;
- explain the steps in project preparation before committing investment in a development project;
- carry out feasibility studies of different projects and based on resource constraint prioritizing the projects;
- assess economic values of agricultural inputs and return and aggregating farm budgets; and
- describe various approaches and methods of comparing project costs and benefits.

The course will expose the students to the importance of the projects in policy formulation for agricultural development. The project concept, its preparation aspects, costs of agricultural projects, pricing of project costs and benefits, financial and economic aspects of project analysis and measures of project worth are discussed in the course. This course is comprised of four blocks.

Project is considered as cutting edge of development process. **Block 1** of the course deals with the concept and significance of project for agriculture development. Types of projects and technical, financial, economic and social aspects are discussed in this block. The objectives of benefits-costs assessment, approaches of project evaluation and different types of costs and benefits involved in the project are also dealt with.

**Block 2** discusses the financial aspect of project analysis. The market prices reflect the value of project. The problems in finding appropriate market price is explained. The objectives, elements and ratios of farm investment analysis are also discussed.

**Block 3** familiarizes you with the economic aspects of project analysis. The concept of economic values and aggregation are important for social cost-benefit analysis of agricultural project. The concept of shadow prices, estimation of economic value of different types of costs and benefits, various aggregating measures, etc., important for project analysis, are also discussed.

**Block 4** deals with various measures of project worth. The time value of the money, undiscounted and discounted measures of project worth and application of discounted measures of project worth are also discussed.

The course assessment will be through assignments and term-end examination as per IGNOU norms. You must prepare the assignments based on your understanding of the contents of this course and the application of the same to the propose activity.
Project is one of the important components for agricultural development. Most of the countries are not well equipped to undertake preparation and analysis of the projects. Preparations of good projects need good understanding of project concepts, time and efforts. The developing countries generally face problem of project implementation due to poor project preparation. The meaning and significance of project, types of project, project preparation and project costs and benefits are discussed in this block. The contents of the block comprise of three units.

**Unit 1** deals with meaning and significance of project. The project is defined and important features of project are explained. The interrelationship between plan and project to achieve the set targets of any development activity is discussed. The significance of project to the country as a whole and to the planners and educationists are also discussed.

**Unit 2** explains the project classification based on its specific objectives. Technical, institutional, organizational, managerial, social, commercial, financial, and economic aspects for good project preparation are discussed. A project passes through different phases in its life cycle. The unit discusses the different phases through which a project passes.

**Unit 3** discusses the basic concepts which are important for cost-benefit assessment of a project. The Unit explains the relevance of objectives in cost-benefit assessment of projects. Approaches of project evaluation viz., with and without approach and before and after approach are discussed in the Unit. Types of cost and benefit and methods of valuation of these costs and benefits associated with agricultural projects are also dealt with.

The material provided in this block is supplemented with various examples and activities to make the learning process simple and interesting. We have also provided check your progress questions for self test at a few places of there units which invariably lead to answers/Hints to the questions set in those exercises. What perhaps you ought to do, is to go through units and jot down important points as you read, in the space provided in the margin. This will help you in assimilating the content. A list of reference books has been provided at the end of each unit for further detailed reading.
UNIT 1  CONCEPT AND SIGNIFICANCE OF PROJECT

Structure
1.0 Objectives
1.1 Introduction
1.2 Meaning and Concept of a Project
   1.2.1 Definition of a Project
   1.2.2 Features of a Project
   1.2.3 Project Concept
1.3 Plan and Project Relationship
   1.3.1 Plans Require Projects
   1.3.2 Projects Require Plans
1.4 Significance of Project
1.5 Let Us Sum Up
1.6 Key Words
1.7 Some Useful Books/References
1.8 Answers/Hints to Check Your Progress

1.0 OBJECTIVES

After going through this unit, you will be able to:
- explain the project and project concept;
- discuss the significance of project to the country, planners and educationists; and
- identify the inter-relationship between plan and project.

1.1 INTRODUCTION

Projects are the building blocks of an investment plan. The plan cannot be good if its constituent parts, the projects, are faulty. This unit will deal with the definition of a project, concept of a project and the significance of a project. The project and plan are also closely interrelated. The interdependence between the two would be studied in detail in section 1.3.

1.2 MEANING AND CONCEPT OF A PROJECT

This section deals with definition of a project and defines the initiation of concept of a project. The project generally involves spending of capital resources in order to create productive assets. These assets then give returns over a number of years, which is tied to the life of most constraining resource. The same could be generalized in the form of following specific definitions of a project.
1.2.1 Definition of a Project

1) Project is an investment activity meant for providing the returns for specific clientele group for specific activity, specific objective and specific area development. It should facilitate analysis in planning, financing, implementation, monitoring, controlling and evaluation.

2) A project is a proposal for an investment to create, expand and/or develop certain facilities in order to increase the production of goods and/or services in a community during a certain period of time. Furthermore, for evaluation purposes, a project is a unit of investment, which can be distinguished technically, commercially and economically from other investments.

3) Project is an activity for which money will be spent in an expectation of returns and which logically seems to lend itself to planning, financing, and implementation as a unit. It is the smallest operational element prepared and implemented as a separate entity in a national plan of programmes of agricultural development. It is a specific activity, with a specific starting point and a specific ending point, intended to accomplish specific objectives. It is a unique activity noticeably different from preceding, similar investments, and it is likely to be different from succeeding ones, not a routine segment of an ongoing programme.

4) A project is an instrument of change. It is a coordinated series of actions resulting from a policy decision to change resource combinations and levels so as to contribute to the realization of the country’s development objectives (Benzamin, 1985).

The first three definitions relate the investment activity to benefits arising out of them. The fourth definition looks at the project as a dynamic element. It says “develop the project according to the plan”. One needs to identify, what is to be changed and how it is to be changed?

1.2.2 Features of a Project

The important features of a project are as follows:

1) The size of the project should be as small as possible and should also be economically, technically and administratively feasible. A number of projects could form a programme. The entire programme could be analysed as single project. This would invite the risk that the high returns from one component would mask the low returns from the other component of the programme. The administrators usually club projects of similar nature while seeking funding for the projects. Even in such situations individual components should be analyzed separately.

2) A project is an investment activity that can be evaluated separately. A project can be separated into parts; each of these can be defined as projects. Such projects should not be considered separately, if they are so closely related that one cannot be operated or fulfill its purpose without the other. For example, Dam and a main canal to distribute water cannot be considered as a two separate project as one part cannot work without the other. Such closely integrated projects should be considered as a one project.
3) The projects are considered and evaluated at all levels from a junior engineer to the Planning Commission or the World Bank. They are also evaluated at all depths ranging from mere inspection by experts to use of programming techniques and scientific guess work or prediction.

4) Same evaluation technique should be used to achieve consistent decisions at all levels and time of evaluation. Thus, the junior engineer or settlement planner should be guided by the same rules and methods as are used in the final appraisal. It is difficult to practice the same in those projects where the aim is to maximize the social advantage for the whole country.

5) All the projects, whether of public or private sector, need to be analysed. The feasibility analysis of private sector projects would help government to approve such projects as well as to grant financial assistance. The public sector projects on the other hand need to be thoroughly analysed, certain public sector enterprises may not yield commercial profit, but they may demand support in the form of subsidies. The analysis would reveal the extent of subsidies needed so that necessary provisions can be done in the plan documents.

6) The biological nature of agricultural projects differentiates the agricultural projects from projects of other economic sectors. This feature of agricultural projects makes it harder to predict input-output relationships.

1.2.3 Project Concept

Project concept is considered as a part of the project cycle. In this stage “project ideas” are first developed. The development of project-concept is prerequisite to the decision to proceed with the next step of identification.

The project-concept definition expresses the country’s development objectives in the form of projects. In order to define project concept, a thorough understanding of the country’s agricultural development objectives, its resource base, and an assessment of the options facing the country should be known. The types of questions that emerge in the process are: should the country invest heavily in irrigated agriculture or should it develop first its potential for rainfed agriculture? In order to find answers to these questions, sectoral surveys covering both irrigated and rainfed agriculture could be attempted. The sectoral survey would help in identification of constraints and potentials for development. The prioritization needs to be done not only in a particular sub-sector (e.g., agriculture) but can also be between sub-sectors (e.g., agriculture, livestock, forestry). The prioritization could be done between livestock and crop production, livestock and fisheries, or forestry, etc.? Priority needs to be accorded to the institutional and support services such as; agricultural credit, research, extension, marketing and storage, etc. The prioritization of investment activity would help in allocation of resources to each of these activities.

The agricultural projects most often do not evolve from a thorough process of prioritization, selection, and screening. The World Bank also undertakes agricultural sector surveys to a limited extent. These sector surveys help in assessment of priorities and development of project ideas that are helpful in identifying specific projects for investment. The sectoral surveys assess the role of the project against the background of the country’s agricultural development objectives and the way they are being pursued. The IFAD also develops an investment strategy under its
special programming missions with the aim of advancing loans. The project ideas are mostly developed on an ad hoc basis and may emerge from a variety of sources. Borrower countries, consultants, engineering firms, officials of donor countries and bilateral agencies on brief visits to a country are all potential sources.

Check Your Progress 1

Note: (i) Use the space below for writing your answers.
(ii) Compare your answers with those given at the end of this unit.

1) What do you mean by a project?

2) State the various features of a project.

1.3 PLAN AND PROJECT RELATIONSHIP

Project selection and planning are intimately connected. Since, the planning is usually done at the center it is expected that projects could be selected for implementation at the center. However, all the projects need not be centrally planned and may be delegated to departments, municipalities and public companies whereas, the large projects must be centrally scrutinized, selected, and fitted into an investment programme.

1.3.1 Plans Require Projects

Development of a sound plan for an area or country requires a great deal of knowledge about existing and potential projects. This is obvious enough for a short term operational plan (1-5 years) which must, contain firm and realisable plans and for a perspective plan (10-15 years) which is a medium term sketch of economic developments in quantitative form. The perspective plans lay down target rates of growth for gross national product, consumption, and also for investment and its financing by both domestic and foreign savings. These plans should be based on realistic assumptions about the amount of investment and output, which will flow when, capacity operation is achieved (the capital-output ratio). The extent of realism of such plans depend upon the knowledge of the rate at which good projects can be planned, designed, built and brought to capacity operation. It also depends upon the knowledge of the capital-output ratios expected in different sectors of the economy. Such knowledge can be gained by studying the investment and output trends in other economies especially the industrialized economies. While using experiences of such countries allowance should be given
for the fact that costs are usually higher than expected, and outputs lower, in developing countries than in industrialized countries. Often the capacity to develop sound projects is overestimated, while the time-period required for their planning, is underestimated in developing countries. In short, if a plan is to be consistent and feasible, the critical appraisal of projects that have already been constructed within the country is needed.

A number of feasible plans may be developed but choosing the best among them is a difficult task. The government must strive continuously to direct investment to those sectors where it will yield the most in order to reach this optimum plan. Thus, for optimum allocation of resources among different sectors of the economy, it is essential that the costs and benefits of different projects in each sector should be assessed on a comparable basis. Thus, a good plan can only be formulated with a great deal of project planning, and with proper economic appraisal of projects.

1.3.2 Projects Require Plans

The economic appraisal is undertaken to find out the feasible projects for implementation. The knowledge of plan helps the analyst in economic appraisal of projects. The assessment of benefits requires estimation of effective demand of the projects product. The demand depends on how the economy would develop in future. This in turn depends on the long term plan and policies of the government. The total demand of a product can be met either by domestic production or through the imports. Here again the government policies with respect to tariffs, exchange rates and import controls would decide the role of each of these sources of supply in meeting the total demand.

The analysis of real cost of a project requires knowledge of the strength and scarcities which are operating and will operate in the economy. It is most usual to take actual prices of scarce resources, reigning at the time, as adequate measures of real scarcities. But scarcities change as development proceeds. The future prices thus needs to be predicted, and used for estimation of those costs and benefits, which occur in future. A likely future change in a price may be taken as a reason for using an accounting price now as an approximation to the insertion of a predicted price for each future year.

The perspective planning would help the planner to guess how scarcities will change. Will disguised or actual unemployment rise or fall? Will the balance of payments position become easier? Will the population growth continue to accelerate? Thus, the look into the future which perspective planning in particular details is necessary in order to produce informed guesses as to future scarcities.

Check Your Progress 2

Note:
  i) Use the space below for writing your answers.
  ii) Compare your answers with those given at the end of this unit.

1) State the role of project in preparation of a sound plan?

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2) Do you agree that the economic appraisal of a project needs the knowledge of a plan? If yes, then explain why it is essential.

1.4 SIGNIFICANCE OF PROJECT

The project has significance as: a developmental tool; seeking external aid; efficient implementation unit for investment; and as a subject matter for educational institutions. These are discussed in detail here:

- Projects are the “Cutting Edge of Development”

Projects are considered to be the “cutting edge of development”. The major problem faced by the administrators is the implementation of development programmes. Poor project preparation is the prime cause for inefficient implementation of these programmes. Most of the countries have poor capacity to prepare and analyze projects. The administrators often underestimate the time and effort needed to prepare suitable projects. They focus more on policy formulation and planning of a much broader scope overlooking the fact that development cannot proceed unless specific projects are there on which to spend money. The result is ill conceived and hastily drawn up projects.

- Projects Role in Overall Development

Projects are essential for development of an economy. Therefore, the project selected for implementation should be of high priority in the national development program. Thorough consideration should be given to all alternatives in the economy as a whole as also within the sub-sector (e.g., agriculture sector). Most often the countries undertake more formal sector studies on agricultural plans to set forth priorities and objectives. However, the focus should be on the overall development of the sector, which would ensure that the investment programmes are well balanced. The sector studies often draw a balance between alternative investments and options are given keeping in mind the linkage between agricultural sector growth and the growth in other sectors. They also study the institutional factor affecting the development and suggest the needed changes in institutional set up. It also suggests the governmental policies which need to be modified in order to provide both the positive and negative incentive to aid in proper implementation of the programme. Such a well thought out and well developed strategy helps in identification of specific projects. The initial feasibility studies are taken up for these projects and are followed by detailed project preparation before investment is committed.

- The Project Investment Decision

There are a number of feasible projects, which can be implemented. However, due to resource constraint they need to be prioritized. The analytical methods help in prioritizing projects; however, the project investment decision is not based solely on this. Certain other factors are considered in taking project investment
decisions. For example, there are two projects; one a settlement project and the other a plantation project giving similar project benefits, the settlement project is chosen for implementation as it would lead to improved income distribution. The national investment decision should be a political decision summing up the best judgment of all those responsible for taking sound decisions. The project analysis should not be considered as a tool to replace this judgment, rather it is an additional tool which should be used to sharpen the judgment process so that the likelihood of error is minimized.

- **Funding for Programme vis-à-vis Project**

The external aid to agriculture sector is usually project based. There are a number of advantages to this approach, firstly, there is discipline involved at various steps of the project cycle. The project based lending makes monitoring and control easier by way of supervision. Projects assist and influence the country’s investment strategy. They aid in directing resources towards the specific target groups and specific regional income group.

The disadvantage of such an approach is that it takes lot of precious time in preparation and implementation of the project. Most often the disbursement of the funds is behind the target and so the rate of absorption of a country for external financing resources for projects is much lower than would be the case with say, programme lending.

The project has a number of components that are mutually supportive therefore a multi-disciplinary approach helps in preparation of a sound project. The agricultural development projects have a diverse component such as social services, irrigation, roads, beneficiary participation, etc. Seeking the beneficiary participation is all the more skilled and time taking process. Therefore, such projects require more time and specialized staff, for better conceptualization of the project. Most often there are shortage of project staff and they are filled by shifting the staff from other departments. Most of the programmes and projects lack sound training of their personnel going to run the project.

- **The Subject of Agricultural Project Analysis**

The subject of agricultural project analysis has not received the required attention among the students because of the unawareness of the opportunities that exist for teaching institutions to contribute to their countries’ project approach to development. The knowledge of the importance and role of projects is limited to a small circle of government officials in key ministries, who negotiate loans with outside donors, and those directly involved in project implementation. Also, there is dearth of course material in this field of project analysis as the recognized existing literature concentrates primarily on the economic analysis of projects, which is only one of the many aspects of project formulation.

The expanding role of the project approach to agricultural development in the developing countries has led to greater demand of qualified manpower for preparation and implementation of these projects. A large bulk of this growing demand is filled by the technical assistance from developed world. In some of the poorest African countries, the technical assistance component for project implementation may reach as high as 25 per cent of total project costs. This is generally not a free gift to the recipient country since it has to be paid back to the
donor. Thus there is a need to encourage this subject in educational institutions in order to create large number of trained manpower.

In many of the developing countries, the question of technical assistance to project preparation and implementation is becoming a question of national pride. The response by some governments to this challenge is the establishment of project preparation units or cells, whose task is to prepare projects for financing with external support and for exclusive domestic financing. Such an organizational development creates demand for skilled manpower.

Check Your Progress 3

Note: i) Use the space below for writing your answers.
    ii) Compare your answers with those given at the end of this unit.

1) State why, the subject of agricultural project analysis has not received much importance?

2) State the importance of project in development of the economy.

1.5 LET US SUM UP

Project is an investment activity which creates assets that produces benefits over a number of years. A project is an important unit of development. It is so interrelated with plan of the country that it is difficult to say which is dependent on the other. The significance of the project ranges as a unit of development, its advantages in seeking external funds and as a subject matter for educationist.

1.6 KEY WORDS

Plan: Plan requires a number of projects. Development of a sound plan for an area or country requires a great deal of knowledge about existing and potential projects. Plan may be of short term, medium term and long term.

Project: Project is an investment proposal which can be implemented and evaluated independently.
1.7 SOME USEFUL BOOKS/REFERENCES


1.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) A project is an investment activity that creates assets which gives benefits over a number of years. For other definitions of the project look in section 1.2.1.

2) The Project should be small as possible economically technically and administratively feasible. For more go through section 1.2.2.

Check Your Progress 2

1) Development of sound plan requires a great deal of knowledge about existing and potential projects. For detail go through section 1.3.1.

2) Yes, the knowledge of plan is essential for an efficient appraisal of a project. For details on the issue refer section 1.3.2.

Check Your Progress 3

1) Because of the unawareness of the opportunities that exist for teaching institutions to contribute to their countries project approach to development.

2) The importance of the project in development of an economy can be had from the fact that the administrators find difficulty in implementation of the programme mainly due to laxity at project preparation stage. For further details refer section 1.4.
UNIT 2 PROJECT PREPARATION ASPECTS AND PROJECT CYCLE

Structure
2.0 Objectives
2.1 Introduction
2.2 Types of Projects
2.3 Aspects in Project Preparation
2.4 Project Cycle
2.5 Let Us Sum Up
2.6 Key Words
2.7 Some Useful Books/References
2.8 Answers/Hints to Check Your Progress

2.0 OBJECTIVES
After going through this unit, you will be in a position to:
• explain the different types of project;
• discuss the different phases through which a project passes; and
• examine the considerations to be given while preparation of a project.

2.1 INTRODUCTION
The project could be classified into a number of groups based on the objectives set for the projects. These are a) technological innovation, b) broadening the physical resource base, c) improvement in the status of disadvantaged groups, d) improvement in post harvest handling and distribution, and e) institution building. Such a classification will help in choosing a particular project class for a particular country depending on the internal environment at that particular point of time.

A project follows a natural sequence of stages/phases. Each phase emerge from the preceding one and also leading to next stage. These stages are identification, preparation and analysis, appraisal, implementation and evaluation. An understanding of each stage of project cycle will help in development of a sound project and its efficient implementation.

There are certain aspects of project which must be considered in all stages of project planning and implementation in order to arrive at a sound project. These aspects are technical, institutional, organization, managerial, social, commercial, financial and economic.

2.2 TYPES OF PROJECTS
The projects could be broadly classified into five groups:
a) Projects on technological innovation.

b) Projects on broadening physical resource base.

c) Projects on improvement of disadvantaged groups.

d) Projects on post harvest handling and distribution.

e) Projects on institution building.

Let us discuss the different types of projects in details.

a) Projects on technological innovation

The major objective of technology-oriented projects is modernization of agriculture by increasing the productivity of existing enterprises. The main emphasis is to raise physical output per unit of input i.e. increased yields per hectare, or per rupee invested, or per labour unit employed. This class of projects emanate from the existence of technological package adequately tested and suitable for widespread dissemination in the large part of the country. Efficient extension machinery is also necessary to raise skills of the farmers for early adoption and implementation of the new technology.

The projects of this type need small to modest capital investments but entail a considerable increase in the working capital requirements. This encourages rapid adoption of technology by the large farmers and becomes a major barrier against their rapid adoption by the smallholder farmers and those who crop rented land. This barrier could be overcome with improvement in accessibility to credit and management skills of farmers.

Examples of such types of project are: projects aimed at the introduction of superior varieties of seeds and planting materials; introduction of new and superior livestock breeds for meat and/or milk and new or improved livestock raising systems; introduction of new fishing equipment and techniques to exploit the resources more fully; projects designed to raise the level of purchased farm inputs in agriculture, mainly fertilizers, pesticides and rodenticides, and may include input distribution systems; Projects aimed at farm mechanization also fall in this category, and include small farm tractors and cultivation equipment. The harnessing of small water supplies, entailing minor irrigation systems, pumping from streams or wells, is included here because the technology of water management is a major feature of such projects.

b) Projects on broadening physical resource base

These projects aim at bringing additional physical resources into production, mainly water and land. These include irrigation projects—both surface and groundwater schemes; drainage schemes; watershed based projects, involving erosion control and a forestation; flood control; salinity control; and settlement projects involving new land. Large irrigation projects are favoured by most of the Governments because: (1) it is easy to get aid from donor countries or international lending agencies; (2) conducting feasibility studies and supervision of construction is relatively simple in such projects; (3) These projects provide higher level of production stability in areas of erratic rainfall.

Large irrigation projects are accompanied by certain weaknesses too. These projects are highly capital intensive, and their origin is frequently the engineer’s desk. The primary reason for shortfalls in performance is the lack of a multi-
disciplinary approach to this type of development. Lack of adequate involvement of agronomist in cropping programme or crop-water use requirements; agricultural economists in the preparation of farm models or in identifying markets; and organization specialists in organizing farmers at the ground level for acquiring inputs, for water control. The actual delivery of water at farms from the primary and secondary canals, falls into a “no man’s land” and flooding method of irrigation is widely prevalent. Therefore, complementary investments like land levelling, drainage channels, field channels etc., are indispensable for optimum utilization of water. This has led to initiation of command area development programmes in India.

Characteristic of large irrigation projects are: 1) It may have an adverse impact on income distribution, 2) The number of beneficiaries is limited and the investment per family is usually high. 3) They have long gestation periods requiring up to 12 years or more for the projects full development benefits to be realized. 4) It involves high foreign exchange component. 5) The organization of farm-level services and farmer training to ensure sound water management is a slow process.

c) Projects on improvement of disadvantaged groups

This class of project is oriented towards deliberate changes in the economic and welfare status of special groups. The primary aim of the project is to intervene in the market process and change the ownership structure of the factors of production and to channel the project’s benefits towards designated target groups.

This class of project has its genesis in the fact that in many societies growth has not been accompanied by development. Certain areas or groups in the country remain immune to the process of economic growth. The countries have experienced tremendous economic growth rates that exerted relatively little or no impact on the regional income disparities. The examples of such type of projects are projects for agricultural credit, land settlement, land reform, nutrition and integrated rural development.

There is a thinking that the laws of a free market economy would contribute to a widening of this income gap. Therefore, conscious and fundamental steps are proposed to correct this situation. Price and subsidy measures are considered inadequate to achieve this end, and structural changes aimed at the very sources of income must be introduced, e.g. redistributing ownership and control of the means of production in the modern sector of the economy.

- Agricultural credit projects

The agricultural credit projects predominantly have production objectives. However, in many countries, the granting of credit to small farmers has been tacitly viewed as an income-transfer mechanism. The impact of increased production and net farm incomes has been questionable, as the recipients could use a large part of the credit for consumption purposes. In India the banks provide loans at 4 per cent rate of interest to weaker sections of the society under the Differential Rate of Interest Scheme (DIR). Regional Rural Banks (RRBs) grant loans to small and marginal farmers, agricultural labourers, cooperative societies, cooperative farming societies for agricultural purposes, artisans, small entrepreneurs, etc., within the operational area of the RRB. Farmer Service Societies (FSS) provide integrated credit service to the weaker sections of the rural areas, viz., small farmers, marginal farmers, agricultural labourers and rural artisans. These are specialized agencies meant to cater to the needs of small farmers and disadvantaged sections of rural areas.
The rationale for having separate institutions catering for large versus small farmer is justified considering the varying lending problems for the two. In case of large farmers, the role of credit is mainly that of a lubricant in an already dynamic context. The small farmers static situation arises from many factors, and requires a comprehensive package approach in which credit is only one element. Therefore, apart from the larger staff needs of institutions dealing with small farmers, there are complementary measures required for introducing new technology, better land-tenure conditions, assured markets, facilities for provision of inputs, etc., if credit is to have an impact on production by small farmers. The high administrative costs of credit projects involving small farmers and the risk element arising from crop losses must be resolved if many small farmers are to be reached apart from maintaining the sustainability of such institutions.

- **Land-settlement projects**

These projects are designed to settle previously economically disadvantaged farmers or landless farmers on new plots of land. Although production considerations naturally exist, social justice appears to be the main objective of such projects. The major constraint with this type of project is its heavy cost and therefore, the low prospects for replacing such development.

Financial limitations are likely to continue to be the most severe obstacle to the programme. Even though the basic services provided at the land-settlement clearance, roads, housing, health facilities, assistance during transitional period, are meagre and of poor quality, and much of the work is supposed to be done by the settlers, the cost of colonization is high.

Apart from the fact that per settler costs can be high, the problem is that the classic type of settlement project benefits relatively few families and really does not make a significant impact on alleviating the problem, which it is designed to remedy. When such settlement revolves around the establishment of tree crops, it could require fully a decade before settlers begin to enjoy a sizeable net cash surplus. The establishment of an adequate infrastructure in new areas not only requires considerable capital, but there is also a time cost and an element of insecurity, which delays the maturing of benefits.

In most countries agricultural planners face land-tenure problems in project areas. The unfavourable land-tenure situation is a disincentive to tenants even in the use of current purchased inputs, such as fertilizers, and more so in undertaking longer-term capital investment. The project analyst can convince political leaders to take up land resettlement on a priority basis. The international institutions could use loan policies as a leverage to induce action on the part of governments.

- **Rural development projects**

Rural development projects are the major thrust of lending institutions, such as the World Bank, in the fight against poverty. Two main features set these projects apart from other classes of agricultural projects: (1) There is a conscious effort to give a distributive bias to the projects output by having a broad-based group of beneficiaries as the target group; (2) it adopts multi-sectoral approach in the project’s concept and formulation.

Income distribution considerations would tend to locate the project in an area with masses of low-income farmers. While the direct number of beneficiaries from
the project's production components may be modest, the total number of beneficiaries falling within the “influence zone” of the project and benefiting from it may be considerably larger.

The multi-sectoral approach recognizes that while the rural poor are strongly dependent on agriculture for their livelihood, the determinants of “quality of life” embrace much more than agricultural pursuits. The inter-sectoral linkages should be given due consideration while formulation of projects intended towards poverty alleviation.

First, directly productive activities would provide the core around which the project should be assembled. This is important, as increases in of production would generate savings for further reinvestment leading to self-sustaining growth of the region.

Second, production support activities would be designed to remove infrastructure constraints to the area’s overall economic development.

Third, social support elements appropriate to the area’s needs, which includes health facilities- hospitals, dispensaries, clinics and diseases control programmes; educational facilities; village drinking water supplies; and community centres. It is important to know how existing services are administered; the location and extent of their clientele; the staffing and manning situation; the budgets- capital and operating; arrangements for maintenance of these services and the extent to which beneficiaries are required to contribute to the cost of such services.

d) Projects on post harvest handling and distribution

These are essentially marketing and storage projects designed to provide more orderly marketing of products, and thereby reduce seasonal price fluctuations. Alternatively, where the crop is an important source of export income, the government may wish to intervene directly in the marketing operations. The implementation of such projects calls for heavy working capital requirements. This type of project results usually from a decision on pricing policy aimed at keeping prices within ranges for the population especially the urban part. Sometimes the intervention is geared to protect the interest of producers by minimizing the role of intermediary.

Marketing projects may also aim at providing infrastructure directly benefiting the farmer, e.g. farm to market roads, drying floors, and on-farm storage. This class of projects generally requires a strong commercially oriented management. The commercial orientation of such projects means that they can be more efficiently executed by the private sector with its dominant profit motive.

e) Projects on institution building

Institution building implies deliberate measures designed to strengthen local institutions so that they can successfully undertake development projects and programmes. Measures to increase the “absorptive capacity” of such countries to undertake agricultural investment projects require urgent attention but development institutions have not yet found plausible solutions to this.

A three-tiered approach is needed to overcome the institutional bottlenecks. The first is at the country planning level. The critical need here is to develop capacity for project generation. Since this activity cuts across many government departments
and agencies, there is need for strong mechanism for coordination. The tasks at this level should, in fact, go beyond project generation to include provision of supporting services to the management of approved projects ready for implementation. Such factors as recruitment of consultants, letting of bids for contracts and obtaining release of foreign exchange, are subject to bureaucratic snarls, resulting in delays in project implementation.

The second level of intervention would be at the project management level. The problem of shortage of local managerial skills has been overcome by seeking assistance from expatriate technical personnel, primarily from developed countries. It is done with the expectation that local nationals would receive on-the job training. However, the relevant body of experience that is meaningful for agricultural project-development work lies in the developing countries themselves. Selected countries could undertake training programmes for potential project managers from other developing countries. Financing of such training could be done by aid-donors, by regional development institutions, and by the countries themselves. Such an approach could well set the basis for a more formalized and systematic exchange between countries of their experience in agricultural development projects.

The third level of intervention would concentrate on farmers. There are two aspects to this: 1) farm level organizations, where again shortage of managerial skills is always acute; 2) developing farmers skills so as to enable full utilization of the new technology.

While conceding that greater emphasis on institution-building could, in the short-run, reduce the initial flow of a project’s benefits, the medium and longer-term considerations of maintainable increases of production should not be neglected.

Check Your Progress 1

Note: i) Use the space below for writing your answers.
   ii) Compare your answers with those given at the end of this unit.

1) Name the various types of projects.

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2) Give the few examples for projects on improvement of disadvantage groups?

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2.3 ASPECTS IN PROJECT PREPARATION

The major dimensions of a project are: (1) technical, (2) institutional, (3) organizational, 4) managerial, (5) social, (6) commercial, (7) financial, and
Introduction to the Project

(8) economic aspects. All the aspects must be considered at every stage in the project planning and implementation cycle.

1) Technical aspects

The technical aspect is concerned with the technical feasibility of the project. It concerns the project’s inputs (supplies) and outputs (production) of real goods and services. In an agricultural project it examines the soil type of the region and their potential, the availability of water (its distribution and scope for development), the crop varieties and livestock breeds suitable for the area, the potential for mechanization and pest endemic in the area and the kind of control that will be needed. These information are used to estimate the possible yield, the potential cropping pattern and input-output relationship. The examination of marketing and storage facilities are done to assess the efficiency in processing and marketing of the products.

To undertake the above analysis a lot of data is needed which could be collected through soil surveys, groundwater surveys, or collection of hydrological data, information about farmers may be collected through primary survey, their current farming methods, and their social values to ensure realistic choices about technology. In some cases field trials may be needed to verify the yields obtainable.

The technical analysis serves the following important purposes:

a) To establish the extent and capacity of a physical resource for development.

b) To generate proposals for possible development alternatives and to justify the selected alternative.

c) To establish the major physical components of the project.

d) To establish the proposed development plan at the farm level.

e) To provide the basis for deriving the project’s cost estimates.

f) To establish the project’s period and phasing.

g) To provide the basis for detailed engineering and design during the construction phase.

h) To supply the major inputs required for the economic analysis.

i) To provide a basis for formulating the project’s organization and management.

2) Institutional aspect

The institutional background of a project is a product of country’s historical evolution and provides the framework within which the project will have to operate. The main task during project preparation is to identify the components of the institutional framework that have a bearing on the project. A few of the elements determining this background are government institutes, project authority, corporate bodies, land-tenure system, banking and credit institutions, farmers organizations and cooperation and religious customs and practices and social mores.

A brief description on each of these is as follows:

i) Government institutions: A thorough understanding of the administrative system of the region or the country is needed. Often there is a well established
balance between the rights of the state *vis-à-vis* centre. Within the state there would be further administrative sub-division up to the village level. For successful project implementation the cooperation of the administration at the lower levels is essential. The project area should be adjusted within a single administrative unit so as to minimize administrative hassles.

**Advantage**: The advantage of using the existing governmental set up is that it is least disruptive and therefore, does not generate problems of inequality among various branches of the civil service. The project through larger flow of resources also strengthens the developmental role of the department or division.

**Disadvantage**: Most of the projects do not easily fit into departmental/divisional lines. For example, in irrigation projects the civil headwork and major irrigation structures are executed by the irrigation department. Yet, the benefits to irrigation development are realized on the farmers field for which the department of agriculture has primary responsibility.

*ii) Project authority*: An authority is established by law that vests the project implementing agency with special powers to undertake its task. It ensures coordination among the various government agencies involved, by the concentration and centralization of authority. It results in two parallel streams of governments.

**Advantages**: An authority has technical skill and financial resources to undertake the project efficiently. It has a shorter chain of command. Since the authority has its own resources, concentrated on narrowly prescribed area, it is able to demonstrate results rapidly.

**Disadvantages**: The authority is not fully aligned with the existing administrative system leading to friction and jealousy. The authority is mainly concerned with the physical achievement of the project, so as to get visible results. Institutions building get no or little priority. Thus the maintenance and operation of the assets created is left to the existing administrative structure, which have little enthusiasm or even skill. The existing administrative structure does not get experience in development projects. The authority may accord priority to certain project activities within the project areas, which usually do not harmonize with the regional priorities of various participatory agencies and may drain resources away from other priorities in the country.

*iii) Corporate entities*: The corporations are needed to introduce business approach to problem concerning commercial objective which falls outside the usual stream of government activity. They can play a facilitating role by approving projects and making funds available to the private sector for those activities that the public sector wishes to promote.

**Advantages**: The corporations are best suited to exploitation of existing resources i.e., fisheries development, processing and marketing, etc.

**Disadvantages**: In the absence of sound management, corporations could become a drain on public resources. The autonomy enjoyed by them creates tensions within the usual administrative stream. Since corporations are usually-profit oriented, and since their management may not be rewarded on the basis of profit performance, there is lack of incentive to work as hard at gaining profits as would be the case in a privately operated projects.
iv) **Land-tenure systems**: The land-ownership patterns and landlord-tenant relationships greatly influence production, employment opportunities and income distribution. Farm size distribution influences the intensity of utilization of farm land, and in motivating farmers to undertake innovations. Thus the owners of large farms may show significant differences from the owners of small farms in such features as, attitudes towards risk-taking, introduction of innovations, managerial and farming skills and access to credits, all of which could exert an important bearing on the project’s success. Moreover, the owner of a large farm is probably much more market oriented in his production planning than the owner of small farm, and therefore, is more responsive to general price movements.

Where the project analyst is concerned with the income distribution aspects of the project it is important to know the distribution of landholdings by size in order to identify the target groups of the project’s beneficiaries.

v) **Farmer organization and cooperatives**: The cooperatives undertake a wide variety of activities covering production, marketing, input supply and distribution, and operate their own extension services. However, the experience of cooperatives, has been disappointing. The project analyst is well advised to explore the possible role that they could play, after making necessary provisions for strengthening them. A basic principle in project work should be to ensure that a cooperative does, in fact, meet a basic need of the bulk of participants. Despite repeated failures the cooperatives are still widely held to be the answer to many rural problems. Project planners should generally be cautious in this regard and critically examine relevant experience in the country and the project area.

3) **Organizational aspects**

Organization refers to the overall design and structure of the body of entity that would undertake the task of project execution. The proposed organization must have the capacity to carry out the assignments given to it and also be attuned to the institutional and legal framework of the country. It should take into consideration the political and social climate of the country. Let us discuss important organizational aspects in detail.

i) **Selecting an organization**: The organization chosen for the project may be either an existing institution, strengthening the existing institution or creation of an entirely new organization. Organizational arrangements depend upon many factors including the following:

a) The existence of institutions already empowered to carry out the proposed functions.

b) The capacity and efficiency of these institutions, their success in assuming these functions, and the priority which they would be able to attach to the project activities.

c) The sensitivity of components of the project to local conditions.

d) The urgency of implementing the project.

e) The extent to which an independence from governmental bureaucracy is a prerequisite for the successful implementation of the project.
ii) Internal organization: This pertains to the type of internal structure within the organization i.e., the departments, divisions, unit structure, etc. The basic principles to be followed are as follows:

a) There must be clear lines of authority running from the top to the bottom of the organization. That is, the chain of command should be clear.

b) The responsibility and authority of each supervisor should be clearly defined in writing.

c) Responsibility should always be coupled with corresponding authority.

d) Authority should be delegated as far down the line as possible. This implies that the decision making power should be placed as near as possible to the scene of action.

e) The number of levels of authority should be kept at a minimum.

f) The work of every person in the organization should be confined as far as possible to the performance of a single leading function.

g) The organization should be flexible, so that it can be adjusted to changing conditions.

h) The organization should be kept as simple as possible.

iii) Beneficiary participation: The involvement of beneficiaries, right from the planning to operation and monitoring and evaluation is a prerequisite for successful implementation of the project. The design of organizational arrangements to secure such involvement is very difficult. It is also important to identify the structure of social authority of the area and their leaders or representatives need to be identified and involved in the planning and management of the project.

4) Management

The task of management is to implement the project’s objectives within the framework of the organizational structure provided for the project. A good management can make a deficient organization structure work but the reverse does not hold. There are four basic considerations in designing a management system for a project:

i) Definition of the objectives: A clear definition of the functions and activities are required to achieve the project’s objective.

ii) Allocation of responsibility: Allocate and assign responsibilities to various agencies or associations for the various project activities. Spell out the duties including the activities that the agency would be required to implement.

iii) Coordination of activities: A suitable mechanism for coordination of the activities of participating agencies should be developed. This is very crucial in rural development projects that have a wide range of diverse activities occurring simultaneously.

iv) Staffing the project: It is the executive function that encompasses the recruiting, selection, training, promotion and retirement of subordinates.
Finding good managers, skilled and semi-skilled workers are really a tough task in developing countries. The staffing problem emerges due to shortage of manpower both in quantitative and qualitative terms.

5) Social aspects

The social patterns, custom, culture, traditions and habits of the clientele a project will serve are assessed. The broader social implications like changes in living standards, material welfare, consumption habits, income distribution effects, etc., of proposed investments are examined. In certain cases weights for income distribution are used so that projects benefiting lower income groups will be favoured. The adverse effect of project on particular groups or regions is examined. The issue of adverse environmental impact is also assessed. Preserving notable scenic attractions or unique wildlife habitats is given high priority during site selection.

i) Environmental consideration: The development of agriculture and agriculturally related enterprises has adverse impact on the environment i.e., ecology- rainfall patterns, river flows, scenic and aesthetic aspects, health of the population. The developmental projects aggravate the rate of depletion of resources due to soil erosion, over-exploitation, overgrazing, by extraction at rates exceeding the maximum sustainable yield as in forestry and fishery ventures.

ii) Multiplier effect: A project may have indirect effects such as multiplier effects and externalities which are felt outside the boundary of the project. The economic analysis does not measure these indirect benefits because of difficulty in measurement. The project planner should at least identify them to gauge their importance. For example, a project may reduce the rates of migration from rural to urban area and thereby reduce the cost of urbanization. On the other hand, predominantly export oriented estate plantation crops, may have an impact outside of the country’s borders especially on other exporting countries.

iii) Social effects of project: It is argued that agricultural projects can and do introduce negative social effects by further widening of the income disparities of beneficiaries that existed at the beginning of the project in the project area.

6) Commercial aspects

The commercial aspects of a project involves the arrangements for marketing the output produced by the project and the supply of inputs needed to build and operate the project. The analyst needs to assess the effective demand of the project output at a remunerative price. The market should be assessed for its capacity to absorb the excess production and the impact of product supply on price of the product. The viability of the project under changed price structure should be analyzed. Project should have provision for the processing of the products.

The analyst also needs to know whether appropriate arrangements are there for the supply of inputs such as of fertilizers, pesticides, and high-yielding seeds needed to adopt new technology or cropping patterns. Appropriate marketing channels exists, do they have capacity to supply needed inputs on times. Or there is need for new channels to be established by the project for new inputs. The arrangements for the procurement of equipment and supplies also need to be analyzed.
7) Financial aspects

Financial analysis measures the financial viability of the project, and is a necessary complement to the economic analysis in decisions to undertake the project. A project may have a number of beneficiaries and participating agencies. The impact of the project on each of these beneficiaries varies and therefore the need to undertake separate financial analysis for each. Therefore, analysis need to be done at the level of ultimate beneficiary - the farmer, intermediate institutions - agricultural banks or development cooperatives, and at the central government.

The main objectives of financial analysis at the farmers or entrepreneur level are:

i) Assessing incentive aspects of the project and setting farm-income target.

The analysis needs to be done to know whether the assets created or acquired by the project, will result in sufficient additional revenue after debt servicing, so as to induce the investor to undertake the activities envisaged under the project? For example: are the incentives offered by irrigation project sufficient enough to induce the farmer to undertake double cropping.

ii) Assessing viability at various stages of the project.

This is important for projects that produce products that become inputs for processing industry e.g., a food processing industry with components for on-farm production of tomatoes, and processing. In such cases, the viability needs to be assessed at the farmer level as well as at industry level.

iii) Assessing borrower’s repayment capacity and determining lending conditions.

The financial analysis would help the credit institutions in assessing the borrower’s capacity to meet amortization and interest payments on any debt. The income and expenditure statement for the project is prepared to help in scheduling of loan repayments.

iv) Determining the contribution of beneficiaries to project costs.

The contribution the beneficiaries to project costs should be determined through the financial analysis. The mode of collection and to what level taxes and levies should be imposed is also determined.

The major objectives of financial analysis to assess the impact of the project on budgets of government institutions are:

i) Formulating the projects’ financing plan.

While preparing a project a separate financial plan should be developed clearly indicating the respective contributions of the lending agency, the government and beneficiaries to the project investment programme. The financial plan also shows the end use of the funds by broad groups, such as machinery and equipment purchases, farm credit, building construction, etc. It is also important to indicate the phasing of expenditure, i.e. year to year expenditure.

ii) Assessing the impact on governments budget.

The project usually has effect on both expenditure and income side.
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The expenditure side effect may be in the form of grants or equity contribution on which no repayment is expected, loans extended at rates far below the opportunity cost of capital, subsidies in different forms, infrastructure requirement such as electrification, rail connection, roads, etc.

The income effects may arise from sources such as; increased land and property taxes, export taxes on agricultural projects, income taxes from profits accruing to corporations and also indirect benefits that can be identified and assessed.

8) Economic aspects

The economic analysis gives a quantitative estimate of the project’s impact on national economy. In project formulation, the economic analysis of agricultural projects is a tool employed post facto to justify a project already selected and designed. It is seldom used as a tool in earliest stages of project formulation to evaluate possible alternatives, and the impact that such alternatives may have on the development objectives of the country. Thus, the present practice aims at establishing that the project selected has met the test of a minimum acceptable rate of return to the economy. It does not say to what extent the project contributes to the non-economic objectives of the government. It requires determination of the likelihood that a proposed project will contribute significantly to the development of the economy and that its contribution will be great enough to justify using scarce resources it will need. The point of view taken here is that of society as a whole.

The financial analysis takes the view point of individual participants while economic analysis takes the view of society. There are three important distinctions between the two which are enlisted as under:

1) In economic analysis taxes and subsidies are treated as transfer payments. The new income generated includes any tax, the project can bear during the production and sales tax, the buyers are willing to pay when they purchase the projects’ products. These taxes, which are part of the total project benefit, are transferred to the government, which acts on behalf of the society as a whole, and are not treated as costs. A government subsidy to the project is a cost to the society, since subsidy is an expenditure of resources that the economy incurs to operate the project.

2) In financial analysis market prices are generally used. In economic analysis, however, some market prices may be changed so that they more accurately reflect social or economic values. These adjusted prices are called “shadow” or “accounting” prices. However, in both financial and economic analysis the projected prices are used, so both rely to a substantial extent on hypothetical prices.

3) The interest on capital is never separated and deducted from the gross return because it is part of the total return to the capital available to the society as a whole and because it is that total return including interest, that economic analysis is designed to estimate. In financial analysis, interest paid to the external suppliers of money may be deducted to derive the benefit stream available to the owners of capital. But interest imputed or “paid” to the entity from whose point of view the financial analysis is being done is not treated as a cost because the interest is part of the total return to the equity capital contributed by the entity.
2.4 PROJECT CYCLE

A project passes through a number of phases and each phase not only grows out of the preceding one but also leads to subsequent one. It is a self renewing cycle so that the new project emanate from the old ones in a continuous manner. The various phases of project cycle are (1) Identification, (2) Preparation and analysis, (3) Appraisal, (4) Implementation, (5) Monitoring and (6) Evaluation.

1) Identification

The first stage in the cycle is to find the potential projects. The thrust here is to delineate the main outlines of the project and to establish the overall viability of the project proposal.

Some of the sources from which projects could be identified are:

a) The well informed technical specialists and local leaders are common source of information. The technical specialists while performing their duties identify many prospective project proposals.

b) Agriculture and allied programmes proposed in the plans of the country as well as States.

c) Areas identified as potential of further development through Government surveys. It may even identify specific projects, especially larger ones that merit consideration for future investment.

d) Special development programmes like IRDP.

e) New projects emerging out of existing projects, etc.

The major steps in the identification process consist of the following:

a) Evaluation of the present situation: The main objective is to establish the
development potential of the area and also to identify the constraints to development.

b) Identifying the relevant policy issues: The governmental policies such as pricing policy, subsidies, taxation, water charges, etc., are examined and their impact on the project proposal is evaluated.

c) Establishing the projects rationale: Overall justification is provided for the country to undertake the project and for lending institutions to support it.

d) Developing the project's design and concept: Delineate the project objectives and the measures proposed for the project to achieve these. These are the core of the project and consist of main components of the project to be financed by the lending institutions.

e) Setting the project's scale: The magnitude of the project is decided, such as size of irrigation command area, number of farmers to be reached, etc.

f) Preparing preliminary estimates of cost and benefits: Prepare the rough estimates of the cost involved, major project components, and the extent of foreign exchange involved. Project benefits are also estimated in order to estimate the viability of the project.

g) Proposing the organization and management structure: The main outlines of the proposed organization and process is prepared. The project's agency could be located within the mainstream of the government department or may require a separate arrangement.

h) Spelling out the further work-requirements: Here, the studies and other requirements for the detailed project-preparation work should be spelled out.

2) Preparation and Analysis

Once the project is identified, the process of more detailed preparation and analysis of project plans starts. In this stage consideration must be given to each and every aspect of the project discuss earlier.

The first step in this stage is to take up feasibility study that will provide enough information for deciding whether to begin more advanced planning. The feasibility study provides opportunity to shape the project to fit its physical and social environment and to ensure that it will be high yielding.

It is better that the economic and financial feasibility studies are introduced in the early stage itself so that feasibility studies use these aspects in the project.

Once the feasibility studies have indicated which proposed project is likely to be worthwhile, detailed planning and analysis may begin. This is the stage when detailed studies commence- the carefully done soil surveys, detailed hydrological surveys, and thorough examination of cropping pattern. Month-by month estimates of labour requirements, and detailed farm budget is prepared.

Detailed planning takes time, 1-2 years or longer. It may also be quite expensive.
Thorough preparation increases a projects' efficiency and helps ensure its smooth implementation in the future, so that the additional time and money required will probably be returned many times over by the increased return from the investment.

Preparation of the plan itself should be planned so that delays can be avoided and resources conserved. The timing of special studies need to be considered, and the services of the consultants should be scheduled so that they are available when needed.

3) Appraisal

The lending institutions/or aid donor appraise the project proposal submitted by recipient countries. Often local or domestic agencies also undertake their own appraisal simultaneously. Once the project is found to be sound, the investment may proceed. But if the appraisal team finds lacunae in the project, the project plan may be altered or a new plan may be developed. Appraisal tries to find out that the major assumptions in the project are correct and realistic. It also establishes that the project has a satisfactory economic rate of return.

Appraisal is also done for the donor/client relationship relating to the financial package, conditions of disbursement, procurement and determining the issues relating to loan negotiations.

4) Implementation

Implementation is the most important part of the project cycle. The successful implementation and realization of the project depends on how realistic a project plan is. This reiterates the need for careful consideration to each aspect of project planning and analysis. A flexible approach should be adopted in implementing a project. The circumstances will change from time to time and the project manager should be able to react intelligently to such changes. As the project is implemented more is known about soils, their response to nitrogen applications, susceptibility to water-logging, and the like, leading to change in technical coefficients. Price changes may call for different cropping patterns or adjustments in inputs. The changes in economic or political environment will alter the way in which the project should be implemented. Implementation is a process of refinement, of learning from experience. Implementation phase is divided into three different periods.

i) **Investment period:** It is the period when major project investments are undertaken. It usually extends up to three to five years from the start of the project in case of agricultural projects. If the project is based on the financial assistance from external financing agency, this period may coincide with the agency’s period for loan disbursements.

ii) **Development period:** This period begins with the start of production. This period lasts for 3 to 5 years, which may be extended if the project has components of cattle herds, tree crops, or other investment with long gestation period. The duration of this phase depends not only on the nature of physical inputs but also on the rate of adoption of new technology by the farmers.

iii) **Project life:** The project life is usually considered to be twenty-five to thirty years. However, the life of the project depends on the normal life of the major asset that the project has created.
5) **Monitoring**

It is the timely collection and analysis of data on the progress of a project, with the objective of identifying constraints which impede successful implementation. This is highly desirable when projects fail, to be completed as per time schedule or in the process of attaining the set goals. It is imperative to get the feedback on the problems faced so that effective measures can be taken up to plug the deficiencies, which hamper the speedy implementation. Monitoring is done continuously to offset various shortcomings that crop up from time to time with regard to various aspects of implementation.

6) **Evaluation**

This is the last phase of the project cycle. It is not confined to completed projects, and can be done several times during the life of the project. The elements of success and failure of a project are analyzed so as to consider those elements in future plans. Evaluation is taken up under following circumstances.

i) When the project is in trouble and needs corrective action.

ii) While planning a follow up project.

iii) When a project is terminated or is well into routine operation.

These could be broadly classified as:

a) **Mid-course evaluation/pre-project evaluation**: It is done at the very beginning in order to assess the economic feasibility of the project.

b) **Concurrent evaluation**: It is done during the execution stage of the project and is meant to identify and analyse any pitfalls in the execution of the project.

c) **Ex-post evaluation**: It is done for the completed projects, in order to assess the achievements of the objectives set out by the projects.

The project management continuously evaluates the projects during its implementation phase. The concerned ministry, the planning body, or an external assistance agency also undertakes evaluation. In large and innovative projects, the projects administrative structure may provide a separate evaluation unit responsible for monitoring the project’s implementation and for bringing problems to the attention of project’s management. Many times, the project management and the sponsoring agency would turn to outside evaluators.

The prime criterion for evaluation of a project is the extent to which the objectives set have been achieved. However, it should also be analysed whether the objectives were themselves appropriate and suitable or not. The project plan should be seen if it was appropriate to one in the light of the objectives set forth. Each objective should be examined whether it was considered well and provision for it was made or not.
Check Your Progress 3

Note:  
   i) Use the space below for writing your answers.
   ii) Compare your answers with those given at the end of this unit.

1) Write the various phases of project cycle.

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2) Which of the phases of project cycle do you think is most important and why?

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2.5 LET US SUM UP

The projects could be broadly classified into five types: 1) Technological innovation, 2) Broadening the physical resource base, 3) Improved status of disadvantaged groups, 4) Improved post harvest handling and distribution, and 5) Institution building. An understanding of each of the broad classes would be useful in developing a project for the development of particular region.

The major dimensions of project are: 1) technical; 2) institutional-organizational-managerial; 3) social; 4) commercial; 5) financial; and 6) economic aspects. All the aspects must be thoughtfully considered at every stage in the project planning and implementation cycle.

A project passes through a number of stages and each phase not only grows out of the preceding one but also leads to subsequent one. It is a self-renewing cycle so that the new project emanate from the old ones in a continuous manner. The various phases of project cycle are identification, preparation and analysis, appraisal, implementation, monitoring and evaluation. By carefully following each phases in the project cycle would help in developing an appropriate project, feasible implementation and reformulation of a new project.

2.6 KEY WORDS

Credit : The granting of a loan and the creation of debt.

Post Harvest Handling : It is the stage of crop production immediately following harvest, including cooling, cleaning, sorting and packing.

Project : A temporary undertaking to create a unique product or service.
Introduction to the Project

Resource

A resource is any physical or virtual entity of limited availability.

Rural Development

Increase economic opportunity and improve the quality of life of peoples in rural area.

2.7 SOME USEFUL BOOKS/REFERENCES


2.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) The projects could be broadly classified into the following categories:
   a) Technological innovation,
   b) Broadening the physical resource base,
   c) Improved status of disadvantaged groups,
   d) Improved post harvest handling and distribution, and
   e) Institution building.

2) Agricultural credit, Land-settlement and rural development project.

Check Your Progress 2

1) The major aspects of project preparation which needs to be considered are:
   a) technical,
   b) institutional-organisational-managerial,
   c) social,
d) commercial,
e) financial, and
f) economic aspects.

All the aspects must be thoughtfully considered at every stage in the project planning and implementation cycle. See section 2.3 for details about each of these aspects.

2) See section 2.3 under the economic aspect head for differences between the financial and economic aspect of the project.

Check Your Progress 3

1) The various phases of the project cycle are
   a) identification,
   b) preparation and analysis,
   c) appraisal,
   d) implementation,
   e) monitoring, and
   f) evaluation,

   See section 2.4 for further details.

2) The implementation phase is the most important phase of the project cycle. See section 2.4 for knowing the reasons for the same.
UNIT 3  PROJECT COSTS AND BENEFITS

Structure

3.0 Objectives
3.1 Introduction
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3.0 OBJECTIVES

After going through this unit, you will be able to:

- discuss the relevance of objectives in costs and benefits assessment of projects;
- explain the items of costs and benefits associated with project; and
- discuss the methods of valuation of costs and benefits associated with agricultural projects.

3.1 INTRODUCTION

The unit deals with the economic analysis of project. Economic analysis of project is important in order to assess whether the project is able to achieve the set objectives of agricultural project. We compare the costs and benefits and determine which among the alternative projects have an acceptable return. The project assessment depends upon the objectives of the projects. Different beneficiaries of project have different objectives from the project. The unit explain the relevance of objectives in cost-benefit assessment of project. The unit also discusses the various approaches of project. There are various types of costs and benefits in the agricultural project. Project costs and benefits can be categorised as direct and indirect costs and benefits (based on the form/effect of return) and tangible and intangible costs and benefits (based on the easiness of measurements of costs and benefits). Detail discussion on all these cost are given in the unit.
3.2 CONCEPTUAL ISSUES IN COSTS AND BENEFITS ASSESSMENT

The various conceptual aspects in costs and benefits assessment of agriculture project such as relevance of objectives, evaluation approaches and direct transfer payments are discussed in this section.

3.2.1 Relevance of Objectives in Cost and Benefit Assessment

The project objectives determine the costs and benefits associated with it. Anything that increases the objective of the project is a benefit and the one reducing it is a cost. The problem with this approach to project evaluation is that each beneficiary of the project has different objectives. For example, a farmer may have the objective of either maximizing returns or leisure time or taste and preferences to a crop or risk taking ability. All these considerations affect a farmer's choice of cropping pattern and thus the income-generating capacity of the project. The analyst should consider the objective that is the most appropriate for the overall beneficiaries and then evaluate the change in incremental income.

Similarly for a private business firm or government corporations, the major objective is to maximize the net income though both have a number of other objectives to fulfill. For a public transport system, providing service in late hours or in less densely populated area is an added objective though it reduces the benefit on account of less number of commuters to use it. A society has the objective of increasing the national income, but will have many other important objectives such as to increase income distribution, to increase the proportion of savings, to increase the number of productive job opportunities, to increase regional integration, to upgrade the general level of education, to improve rural health, or to safeguard national security. The consideration of these wide arrays of objectives would lead to selection of a project that would not lead to maximum increase in income.

The economic analyses do not take care of all the objectives of the project. Usually, the income maximization objective is considered in project analysis and other objectives are taken care later. This is justified, as maximization of income is the major objective of national economic policy of many of the developing countries. Thus, the objective of a farm for participating in a project could be to maximize the incremental net benefit. On the other hand for a private business firm or corporation in the public sector, the objective could be maximizing the net income. For the society as a whole the objective could be maximizing the contribution the project makes to the national income (i.e., the value of all goods and services produced during a particular year), the other objectives could be considered later. Thus, after evaluating all the projects recommended the implementers to select the project that not only gives highest income but also the one making significant contribution towards social objectives. For example, the projects that make almost same contribution to increased income, choice could be the one that has the most favorable effects on income distribution, or the one that creates the most jobs, or the one that is the most attractive in a disadvantaged region. The system of economic analysis discussed above is anything that increases the national income is a benefit and anything that decreases the national income is a cost. The objective of change in national income refers to change in real income i.e., change in physical or tangible character of goods and services.
In economic analysis, it is assumed that finances for a project comes from domestic sources and that all returns from the project go to domestic residents. Therefore the national income is considered to be Gross Domestic Product (GDP) and not Gross National Product (GNP).

### 3.2.2 Evaluation Approaches

Two approaches are widely used in evaluation of projects a) with and without approach and b) before and after approach. In the case of with and without approach, the project analysis identifies and evaluates the costs and benefits associated with the proposed project and compare them with the situation, as would be without the project. The difference between the two is the incremental net benefit from the project investment.

The before and after approach does not accounts for the changes in production that would occur without the project and thus estimates benefits to the project investment that is usually on the higher side. A change in output without the project could be in three ways. Firstly, increase in production takes place and continues during the life of the project, i.e., gradual increase in crop yield (Fig. 3.1). Secondly, there is decrease in production in the absence of the project, for example, soil erosion in riverside or on coasts. Before and after comparison fails to identify these benefits (Fig. 3.2).
Thirdly, an investment to avoid a loss might also lead to an increase in production, so that the total benefit would arise partly from the loss avoided and partly from increased production. A project to line the canals would reduce the seepage and permit better drainage between irrigations. The proposed project is expected to arrest salinization, to the irrigation water otherwise lost to seepage, and to help farmers increase the use of modern inputs. The combination of measures would not only avoid a loss but also lead to an increase in production. Again, a simple before-and-after comparison would fail to identify the benefit realized by avoiding the loss (Fig. 3.3). If no change in output is expected in the project area without the project, then the two approaches would give the same results. In some projects, the prospects for increasing production without new investment are minimal. The incremental value could be attributed solely to the new investment in pumps and canals, i.e. in draught prone areas and dry land areas lacking assured source of irrigation (Fig. 3.4).

Fig. 3.3: Lining of canals to prevent salinization and to improve water use efficiency

Fig. 3.4: The small irrigation projects in dry land areas
In many of the resettlement projects it is observed that there may not be any improvement in the output without the project. The economic use of resources is only possible with the project. In this case without project and before project values would be the same (Fig. 3.5).

![Diagram showing incremental net benefits with and without project](image)

**Fig. 3.5: A resettlement project yielding no economic use of resources without the project**

### 3.2.3 Direct Transfer Payments

The direct transfer payments are those items representing shift in goods and services from one entity of the society to another without affecting the national income. These are usually easier to identify. In agricultural project analysis four kinds of direct transfer payments are common viz., taxes, subsidies, loans, and debt service (the payment of interest and repayment of principal). These payments are treated differently in financial and economic analysis. In financial analysis a tax payment is a cost. Upon payment of tax by the farmer, his net benefit is reduced. But the farmers payment of tax does not reduce the national income. Only transfer of income takes place from farmer to the government that can be used for social purposes. Because payment of tax does not reduce national income, it is not a cost from the standpoint of the society as a whole. Thus, in economic analysis of the project the payment of taxes is not included as a cost in project accounts rather it remains a part of the overall benefit stream of the project.

Taxes that are treated as a direct transfer payment are those representing a diversion of net benefit to the society. Quite often, however, government charges for goods supplied or services rendered may be called taxes. Water rates, for example, may be considered a tax by the farmer, but from the standpoint of the society as a whole they are a payment by the farmer to the irrigation authority in exchange for water supplied. Such items would be considered as cost in both financial and economic analysis. Whether a tax should be treated as a transfer payment or as a payment for goods and services depends on whether the payment is a compensation for goods and services needed to carry out the project or merely a transfer, to be used for general social purposes, of some part of the benefit from the project to the society as a whole.

Subsidies are simply direct transfer payments that flow in the opposite direction from taxes. If a farmer is able to purchase fertilizer at a subsidized price, that will
reduce his costs and thereby increase his net benefit, but the cost of the fertilizer in the use of the society's real resources remains the same. The resources needed to produce the fertilizer (or import it from abroad) reduce the national income available to the society. Hence, for economic analysis of a project we must enter the full cost of the fertilizer. Subsidies could be of many form, one form is that lowers the selling price of inputs below what otherwise would be their market price. Subsidy can increase the amount, the farmer receives for what he sells in the market and that paid by the government, i.e., government procuring foodgrains at minimum support price. The same result could also be achieved without involvement of direct subsidy. In this case, maintain the market price at a level higher than it otherwise would be by, levying an import duty on competing imports or forbidding competing imports altogether. Although it is not a direct subsidy, the difference between the higher controlled price set by such measures and the lower price for competing imports that would prevail without such measures does represent an indirect transfer from the consumer to the farmer.

Credit transactions are the other major form of direct transfer payment in agricultural projects. From the standpoint of the farmer, receipt of a loan increases the production resources available; payment of interest and repayment of principal reduce them. But from the standpoint of the economy, things look different. Does the loan reduce the national income available? No, it merely transfers the control over resources from the lender to the borrower. Perhaps one farmer makes the loan to his neighbour. The lending farmer cannot use the money he lends to buy fertilizer, but the borrowing farmer can. The use of the fertilizer, of course, is a cost to the society because it uses up resources and thus reduces the national income. But the loan transaction does not itself reduce the national income; it is, rather, a direct transfer payment. In reverse, the same thing happens when the farmer repays his loan. The farmer who borrowed cannot buy fertilizer with the money he uses to repay the loan his neighbour made, but his neighbour can. Thus, the repayment is also a direct transfer payment.

Check Your Progress 1

Note: i) Use the space below for writing your answer.
   ii) Compare your answers with those given at the end of this unit.

1) State the role of project objectives in assessment of costs and benefits of a project?

2) Brief the various approaches used in economic evaluation of a project?
3) What do you mean by direct transfer payments? How it is accounted in economic and financial analysis?

3.3 TANGIBLE VS. INTANGIBLE COSTS AND BENEFITS

The tangible benefits or costs of a project whether direct or indirect are those which can be valued in monetary terms. While the increase in agricultural output on irrigated land is the tangible benefits of an irrigation project, the labour cost, costs of pipes are the tangible costs.

The intangible benefits and cost are which cannot be easily measured in monetary term. The beautification of an area resulting from an irrigation project is an example of intangible benefits, whereas destruction of wild life is an indirect cost.

It is rather easy to identify and value the both tangible costs and benefits but not so for intangible ones. While examining costs, the question asked is, would the item reduce the net benefit of a farm or the net income of a firm (our objective in financial analysis), or the national income (our objective in economic analysis).

3.3.1 Tangible Costs of Agricultural Project

Major items of tangible costs of agricultural projects are physical goods, labour, land, contingency allowance taxes, debt services, sunk costs, etc. The brief explanation of these cost items are given below.

• Physical Goods

The physical goods used in an agricultural projects are easier to identify i.e., concrete for canal irrigation projects, fertilizer and pesticides for crop production projects, or materials for the construction of homes in land settlement projects. The technical problem, however, is in planning and design associated with finding out how much will be needed and when.

• Labour

Identification of labour component of agricultural project is also easy. From the highly skilled project manager to the farmer maintaining his farm enterprises, the labour inputs raise less a question of what than of how much and when. Labour however, may raise special valuation problems that call for the use of a shadow price. Problem also comes on the occasion of valuing family labour. The family labour is valued at the opportunity cost, i.e., the benefit the family must forgo to participate in the project.

• Land

Identification of land component of agricultural projects is also easier. How much land would be needed and where it is located is easier to determine. The actual
problem comes in valuing land because of the very special kind of market conditions that exist when land is transferred from one owner to another.

- **Contingency Allowances**

Sound project planning requires that provision be made in advance for possible adverse changes in physical conditions or prices that would add to the baseline costs. Contingency allowances are, therefore, included as a regular part of the project cost estimates. Contingency allowances may be divided into those that provide for physical contingencies and those for price contingencies. In turn, price contingency allowances comprise two categories, those for relative changes in price and those for general inflation.

Physical contingencies and price contingencies that provide for increases in relative costs underline our expectation that physical changes and relative price changes are likely to occur, even though we cannot forecast with confidence just how their influence will be felt. The increase in the use of real goods and services represented by the physical contingency allowance is a real cost and will reduce the final goods and services available for other purposes; that is, it will reduce the national income and, hence, is a cost to the society. Similarly, a rise in the relative cost of an item implies that its productivity elsewhere in the society has increased; that is, its potential contribution to national income has risen. A greater value is forgone by using the item for our project; hence, there is a larger reduction in national income. To tackle the problem of general inflation economic analysis is usually done of constant prices. This helps in comparison among alternative projects. If inflation is expected to be significant, provision for its effects on project costs needs to be made in the project financial plan so that an adequate budget is obtained. Contingency allowances for inflation would not, however, be included among the costs in project accounts other than the financing plan.

- **Taxes**

The payment of taxes, including duties and tariffs, is customarily treated as a cost in financial analysis but as a transfer payment in economic analysis (since such payment does not reduce the national income). The amount that would be deducted for taxes in the financial accounts remains in the economic accounts as part of the incremental net benefit and, thus, part of the new income generated by the project.

- **Debt Service**

The same approach applies to debt service—the payment of interest and the repayment of capital. Both are treated as an outflow in financial analysis. In economic analysis, however, they are considered transfer payments and are omitted from the economic accounts.

Treatment of interest during construction can give rise to confusion. Lending institutions sometimes add the value of interest during construction to the principal of the loan and do not require any interest payment until the project begins to operate and its revenues are flowing. This process is known as “capitalizing” interest. The amount added to the principal as a result of capitalizing interest during construction is similar to an additional loan. Capitalizing interest defers interest cost, but when the interest payments are actually due, they will, of course, be larger because the amount of the loan has been increased. From the standpoint of economic analysis, the treatment of interest during construction is clear. It is a
direct transfer payment the same as any other interest payment, and it should be omitted from the economic accounts. Often interest during construction is simply added to the capital cost of the project. To obtain the economic value of the capital cost, the amount of the interest during construction must be subtracted from the capital cost and omitted from the economic account.

In economic analysis, debt service is treated as a transfer within the economy even if the project will actually be financed by a foreign loan and debt service will be paid abroad. This is because of the convention of assuming that all financing for a project will come from domestic sources and all returns from the project will go to domestic residents. This convention, as noted earlier, separates the decision of how good a project is from the decision of how to finance it. Hence, even if it is expected that a project would be financed, say, by a World Bank loan, the debt service on that loan would not appear as a cost in the economic accounts of the project analysis.

- Sunk Costs

Sunk costs are those costs incurred in the past upon which a proposed new investment will be based. In the analysis of the proposed investment only future returns to future costs are considered; expenditures in the past, or sunk costs, do not appear in our accounts. Suppose, considerable amount is spent on a project, yet the project would be selected only if the future returns to the future cost of completing the project is attractive. It may so happen that the project selected may not be feasible while looking on a holistic perspective.

While evaluating past investment decisions, it is desirable to do an economic and financial analysis of a completed project. In this situation, the analyst would compare the return from all expenditures over the past life of the project with all returns. Such an analysis helps in determining the yield of past projects. It helps in taking informed judgment about future projects. It does not help us decide what to do in the present. Money spent in the past is already gone.

3.3.2 Tangible Benefits of Agricultural Projects

Tangible benefits from agricultural projects arise either in the form of an increased value of production or through reduced costs. The tangible benefits are discussed under the following forms.

- Increase in Production

Increase in physical production is the most common benefit of agricultural projects. The irrigation projects lead to increased yield through controlled water supply. A project involving increased access to credit increases production through increased supply of productive resources i.e., fertilizer, pesticides, seeds, etc., and investment resources i.e., tube wells, tractors, etc.

Identification of benefits and costs is easier in agricultural projects as the increased production mostly enters the market. However, the estimation of correct value for use in economic analysis may be a bit difficult.

In many agricultural projects farm family consumes the produce. The home-consumed product increases the farm families' net benefit and so is the national income. It is therefore part of project benefit in both economic and financial analysis. If the home consumed benefit is not included in the analysis it will lead to underestimating the returns to investment compared to other projects.
In projects which deal predominantly with home consumed crops the financial analysis needs to be done carefully. In such cases, it becomes important to estimate the cash income generated by the project, which determines the cash in hand to purchase modern inputs or to meet their credit obligations.

- **Quality Improvement**

  The agricultural projects many a times lead to improvement in quality of farm produce. For example, loans to small dairy farmers under the dairy improvement projects in India lead to increase in both production and quality. In most of the agricultural projects improvements in both produce and quality is expected. Project intended to propagate organic farming, adoption of improved management practices like Hazard Analysis and Critical Control Points (HACCP) are aimed at improving the quality of products which become acceptable in export market and also pay premium prices in domestic market.

- **Change in Time of Sale**

  Poor marketing infrastructure in developing countries leads to inefficient marketing of farm produce. Some of the agricultural projects, are therefore, aimed at improving the market infrastructure so that farm produce is sold at appropriate time when prices are high. Projects intended to develop cold storage structures etc., are intended to defer the sale of produce during off-seasons. The benefits of such project arise due to “temporal value of produce”.

- **Change in Location of Sale**

  The production centres are not well connected with markets or the consumption centres. Improvement in transport facility creates place and time utility. An example of a project intending to improve transport system is the launching of National Integrated Highway Project merging the golden quadrilateral connecting Delhi, Mumbai, Chennai and Calcutta with East-West (Silchar to Saurashtra) and North-South (Kashmir to Kanyakumari) corridors.

- **Changes in Product Form (Grading and Processing)**

  The agricultural processing industries change the form of the agricultural products. This increases the storability of products, value addition and increased employment opportunity. For example, establishing milling plants, tomato processing plants, mango juice/pulp plants etc., are intended to change the form of products.

- **Cost Reduction through Mechanization**

  Agricultural mechanization leads to increase in production and productivity, better use of agricultural resources, improvement in technology and cost reduction and commercialization of agriculture. Governments in developing countries have taken a number of measures to induce adoption of agricultural machinery such as tube wells, threshers, tractors, etc.

- **Reduced Transport Costs**

  Development of rural roads improves the connectivity of farms with the markets. The benefits realized from such projects are in terms of reduced transport cost of farm produce. The benefit realized may be distributed among farmers, marketing agencies, and consumers.
- **Losses Avoided**

Poor post harvest management is the cause of loss of farm produce to the extent of 20 per cent in case of foodgrains and to the extent of 25 to 35 per cent in case of fruits and vegetables. Setting up of agricultural processing industries, cold storage facilities, cold chains and inducing farmers to adopt on farm processing facilities are aimed at reducing the losses of farm produce.

- **Other Kinds of Tangible Benefits**

The agricultural development also leads to many other kinds of tangible/direct benefits most often in sectors other than agriculture. Transport projects are often very important for agricultural development. The benefits may arise not only from cost reduction, but also from saving in time, reduction in accident, or development activities in areas newly accessible to markets. If new housing for farmers has been included among the costs of a project, as is often the case in land settlement and irrigation projects, then among the benefits will be an allowance for the rental value of the housing. Since, this is an imputed value, there are valuation problems.

### 3.3.3 Intangible Costs and Benefits of Agricultural Project

Intangible costs and benefits are associated with almost every agricultural project. The example of such costs and benefits are creation of new job opportunities, better health and reduced infant mortality as a result of more rural clinics, better nutrition, reduced incidence of waterborne disease as a result of improved rural water supplies, national integration, or even national defence. Valuation of such costs and benefits is difficult. The intangible benefits could be considered in project selection process wherein these are carefully identified and quantified even though valuation is impossible. For example, how many children will enrol in new schools? How many homes will benefit from a better system of water supply? How many infants will be saved because of more rural clinics?

The projects giving intangible benefits have many a times tangible costs e.g., construction costs for schools, salaries for nurses in a public health system, pipes for rural water supplies, and the like. Some other projects may be associated with intangible costs like, increased pollution, disturbance in ecological balance and loss of scenic values. The intangible costs are difficult to value yet they need to be identified and quantified. In taking project decisions such intangible costs and benefits need to be taken into account through subjective valuation.

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**Check Your Progress 2**

**Note:**

i) Use the space below for writing your answers.

ii) Compare your answers with those given at the end of this unit.

1) Enlist the various tangible costs involved in agricultural project?

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2) What is a tangible benefit? Brief the various tangible benefits expected in agricultural projects.

3) State the intangible cost and benefit of agricultural projects?

3.4 DIRECT VS. INDIRECT COST AND BENEFITS

Direct cost and benefits are easier to identify. Direct benefits and costs are those which are closely related to the execution and objectives of the projects. The direct benefits of a project return to the money value of goods and services generated if the project is executed. The direct benefits of an education project might be considered as the increase in earning of the individuals participating in the project. Direct costs are all the construction costs, operating and maintenance cost incurred over the life of the project. The direct cost of an education project consists of teachers salaries, cost of buildings and teaching aids.

The indirect benefits and costs are identified as those which are the by-products or side-effects the project. The indirect benefits of an irrigation project may appear in the form of less soil erosion and indirect cost may take form of diversion of water from the production activities.

3.4.1 Secondary Costs and Benefits

The agricultural projects often lead to creation of benefits and costs outside the project area. Such type of costs and benefits are called secondary costs and benefits. The economic analysis of a project should account for secondary costs and benefits together with direct costs and benefits. These costs and benefits are however, not considered in case of financial analysis. Incorporating secondary costs or benefits in project analysis can be viewed as an analytical device to account for the value added that arises outside the project but is a result of the project investment. Every item is valued either at its opportunity cost or at a value determined by a consumer’s willingness to pay for the item. Though using shadow prices based on opportunity costs or willingness to pay greatly reduces the difficulty of dealing with secondary costs and benefits, there still remain many valuation problems related to goods and services not commonly traded in competitive markets. One way to avoid some of these problems is to treat a group of closely related investments as a single project. For example, it is common to consider the output of irrigation projects as the increased farm production, since valuing irrigation water is difficult. Another example is found in the development of roads in inaccessible areas. It is argued that the production arising from the induced investment activities
of otherwise unemployed new settlers should be considered a secondary benefit of the road investment. One way of avoiding the problem is to view this case as a land settlement project in which the road is a component. New production is then properly included among the direct benefits of the project and can be included in the project accounts at market or shadow prices, and no attempt need be made to allocate the benefits between road investment and the other kinds of investment that must be made by settlers and government if settlement is to succeed.

The “technological spill over” or “technological externalities” are another form of secondary costs and benefits. Adverse ecological effects/side effects of irrigation development are an example of secondary cost/benefit. A dam may reduce river flow, increase cost of dredging down stream, and change the river ecosystem. Development of tube wells in a region may affect the performance of existing tube wells. When the technological externalities are significant and can be identified or valued, should be treated as direct cost or the cost of avoiding these effects could be included among project costs.

The secondary benefits are also expected from an agricultural project in the form of “multiplier effect”. This is usually possible in situations where excess capacity exists. In such circumstances investment leads to additional increases in income through successive rounds of investment. The multiplier effect is accounted by taking shadow-price at opportunity cost. Since, the opportunity cost of using excess capacity is only the cost of the raw materials and labour involved, only variable costs will enter the project accounts until existing excess capacity is used up.

The project benefit results in increased consumption of goods and services as a result of effect of consumption multiplier. Since, the consumption multipliers would be much the same across project alternatives, omitting them would have little impact on the relative ranking of the projects.

Check Your Progress 3

Note: i) Use the space below for writing your answer.
ii) Compare your answers with those given at the end of this unit.

1) What are secondary costs and benefits? How it can be accounted in the economic analysis?

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3.5 LET US SUM UP

The economic analysis of projects involves comparison of costs and benefits. Therefore, identification of costs and benefits components and their valuation is essential to determine which among the alternative projects give acceptable returns. We learnt from the unit various types of tangible and intangible costs and benefits. We have also learnt how these costs and benefits are treated in financial and
economic analysis of a project. The various approaches used in project appraisal i.e. with and without and before and after approaches were dealt in detail. An understanding of these concepts and methods would help in appraisal of agricultural projects.

3.6 KEY WORDS

Benefit : The positive contribution to gross national product (or other measure of value) from an economic activity or project.

Cost : A cost is the value of money that has been used up to produce something.

Evaluation : Evaluation is the systematic determination of merit, worth, and significance of something or someone.

3.7 SOME USEFUL BOOKS/REFERENCES


Mukherjee, S., M. Mukharjee and A. Ghose, Micro Economics, Printice Hall of India.


http://en.wikipedia.org

3.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) The costs and benefits of project depend on the objectives that have been set for the project. The detailed explanation is given in section 3.2.1.

2) Two approaches are mainly used in project analysis: (i) With and without approach, and (ii) before and after approach. The advantages and considerations to be given in financial and economic appraisal of projects for each of these approaches is given in section 3.2.2.
3) The direct transfer payments are those items representing shift in goods and services from one entity of the society to another without affecting the national income. In agricultural project analysis four kinds of direct transfer payments are common: taxes, subsidies, loans, and debt servicing (the payment of interest and repayment of principal). The detailed accounts of how they are treated in economic and financial analysis are given in section 3.2.3.

Check Your Progress 2

1) The various tangible costs involved in agricultural projects are (a) Physical goods, (b) Labour, (c) Land, (d) Contingency allowances, (e) Taxes, (f) Debt servicing, and (g) Sunk costs, etc. The details about each of these cost items are given in section 3.3.1.

2) The tangible benefits from agricultural projects arise either in the form of an increased value of production or through reduced costs. The various types of tangible benefits are: (a) Production, (b) Quality improvement, (c) Change in time of sale, (d) Change in location of sale, (e) Changes in product form (grading and processing), (f) Cost reduction through mechanization, (g) Reduced transport costs, (h) Losses avoided, (i) Other kinds of tangible benefits-saving time, development activities, etc. For detail see section 3.3.2.

3) The costs and benefits that cannot be easily perceived and felt are called intangible costs and benefits. They are, therefore, difficult to quantify. The example of such cost and benefits are creation of new job opportunities, better health and reduced infant mortality as a result of more rural clinics, better nutrition, reduced incidence of waterborne disease as a result of improved rural water supplies, national integration, or even national defence. Valuation of such costs and benefits is difficult. The other details about intangible costs and benefits are given in section 3.3.3.

Check Your Progress 3

1) The agricultural projects often lead to creation of benefits and costs outside the project area. Such type of cost and benefits are called secondary cost and benefits. The economic analysis of a project should account for secondary costs and benefits together with direct costs and benefits. These costs and benefits are however, not considered in case of financial analysis. The further detailed explanation is given in section 3.4.1.
Dear Student,

You may have found certain portions of the text very interesting and some portions difficult to understand while studying the units of this block. We wish to know your difficulties and suggestions in order to improve the course. Therefore, kindly fill in this questionnaire pertaining to this block and send us this sheet. If you find the space provided in sufficient, please use a separate sheet.

(Feedback Questionnaire)

Enrolment No. ____________________________

Course Code: ____________________________ Block No.: ____________

1) How many hours did you need for studying the units of this block?

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2) Please give your reactions to the following items based on your reading of the block.

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3) Any other comments:

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