UNIT 3  PROJECT COSTS AND BENEFITS

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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 farmers 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.
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In economic analysis, it is assumed that finances for a project come 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 compares 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 account 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 a 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).

![Fig. 3.1: Introduction of high yielding varieties](image)

![Fig. 3.2: Embankment of coastal belts and riversides](image)
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 of 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?

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2) Brief the various approaches used in economic evaluation of a project?

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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 costs 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 financing 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
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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.

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?
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.Directs 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 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?

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.