1. **Introduction**

Projects have a major role to play in the economic development of a country. Since the introduction of planning in our economy, we have been investing large amount of money in projects related to industry, minerals, power, transportation, irrigation, education etc. with a view to improve the socio-economic conditions of the people. These projects are designed with the aim of efficient management, earning adequate return to provide for future development with their own resources. But experience shows that there are several shortcomings in the ultimate success of achieving the objectives of the proposed project.

* 1. **the project concept and definition**

Project planning and analysis has a long history in financial and business analysis. Project planning has always been used as a means of checking the profitability of a particular investment by private firms. Recent experiences show that project analysis has attracted the attention of development economists. Projects are now assessed from the economy’s viewpoint instead of only from the firm’s perspective. The selection criteria have also included economic criteria on top of financial criteria.

Perhaps the most difficult problem confronting administrators in developing countries is implementing development programs. Much of the failures can be traced to poor project preparation. Especially from development viewpoint, for most development activities careful preparation in advance of expenditure is, if not absolutely essential, at least the best available means to ensure efficient, economic use of capital funds and to increase the chances of implementation on schedule. Unless projects are not carefully prepared in substantial details, inefficient or even wasteful expenditure is almost sure to result – a tragic loss in nation’s capital.

The term project has a wider meaning. A project is accomplished by performing a set of activities. For example, construction of a house is a project. The construction of a house consists of many activities like digging of foundation pits, construction of foundation, construction of walls, construction of roof, fixing of doors and windows, fixing of sanitary fitting, wiring etc. Another aspect of project is the non-routine nature of activities. Each project is unique in the sense that the activities of a project are unique and non-routine. A project consumes resources. The resources required for completing a project are men, material, money and time.

Thus, we can define a project is a temporary organization that is non-routine in nature and needed to produce a unique, and predefined outcome or result at a specified time using predetermined resources”.

Let us now consider some definitions of ‘project’. Newman et.al define that “a project typically has a distinct mission that it is designed to achieve and a clear termination point the achievement of the mission”. Gillinger defines “project” as the whole complex of activities involved in using resources to gain benefits. Project management institute, USA defined project as “a system involving the co-ordination of a number of separate department entities throughout organization, in a way it must be completed with prescribed schedules and time constraints”. According to the encyclopedia of management, “project is an organized unit dedicated to the attainment of goal, the successful completion of a development project on time, within budget, in conformance with predetermined program specification.”

There are many definitions of a project and many different types of projects. The simplest way to understand a project is to identify the following common characteristics:

1. it has a specific starting and finishing time,
2. it has usually geographical and sometimes organizational boundary,
3. it has clearly defined set of objectives,
4. it entails the investment of scarce resources in the expectation of future benefit, and
5. it may be planned, financed and implemented as a unit

Therefore, a project can be defined as an investment activity with definite objective at specific location in which scarce resources are expended to produce benefits over an extended period of time. A project is a complex set of activities where resources are used in expectation of return and which lends itself to planning, financing and implementing as a unit.

Project, in general, involves the creation of new and additional fixed production capacity. It requires the commitment of scarce resources to a specific line of action which prevents the use to other areas. Involves finances including overseas loans.

The basic characteristics of capital expenditure (also referred to as a capital investment or capital project or just project), is that it typically involve current and/or future outlays) of funds in the expectation of a stream of benefits extending far into the future. Capital investment decisions often represent the most important decisions taken by the firm or other decision maker. Capital investment decisions have far reaching impact into the future. They are also characterized by irreversibility. Thus, a wrong capital investment decision often cannot be reversed without incurring substantial loss. They also involve substantial outlay of capital. Conceptually project could be instruments/tools of implementing development policies and programs.

On the other hand, **project appraisal** **or analysis** is a method of evaluating alternative investment projects in order to maximize the net benefit a society drives from its scarce resources. It involves the benefits and costs of project and reduces them to a common yardstick (present value).

**Importance of Project Planning**

It's unlikely you would attempt to build a house without a set of blueprints. Regardless of the size of the project, working from a plan will give you the same advantages, literally serving as the blueprint to your project. The depth and quality of your plan will be directly proportional to the results of your finished project. Project plans can help:

**1. Visualize your goals** and the path needed to take there.

**2. Improve communication**. Because a description of communication protocols are a part of a project plan, your project team, stakeholders and decision-makers all know how and when they need to communicate with each other.

**3. Decrease time and costs.** In many ways, with everyone in the team able to foresee problems before they happen. Carpenters often say, "Measure twice and cut once."

**4. Improve your control** of the project. When stakeholders agree on a project plan, they are less likely to try to change the course of a project once it has begun. When they do want to make changes, you can refer to the plan and show how the change will affect the schedule and costs.

**5. Improve the allocation of resources.** Because a project plan includes a schedule, you will know exactly when team members are required to do their work and when they will need tools and supplies to do it.

**6. Keep you on course.**  People, for example, get sick or finish tasks earlier than anticipated. With a project schedule, it's much easier to make adjustments as you go along to ensure the project stays on course.

While there are always difficulties in project planning, these difficulties always take less time and cost less money than facing difficulties in the midst of a project. Keep in mind that no project is intended to be a success on its own. The better your plan is, the more likely it will finish on time and within your budget.

## 1.3 The linkage between projects and programs

It is necessary to distinguish between projects and programs because there is sometimes a tendency to use them interchangeably. While a project refers to an investment activity where resources are used to create capital assets, which produce benefits over time and has a beginning and an end with specific objectives, a program is an ongoing development effort or plan which may not necessarily be time bounded. Examples could be a road development program, a health improvement program, a nutritional improvement program, a rural electrification program, etc. A development plan is a general statement of economic policy. National development plans are further disaggregated into a set of sectoral plans.

A development plan or a program is therefore a wider concept than a project. It may include one or several projects at various times whose specific objectives are linked to the achievement of higher level of common objectives. For instance, a health program may include a water project as well as a construction of health centers both aimed at improving the health of a given community, which previously lacked easy access to these essential facilities. Projects, which are not linked with others to form a program, are sometimes referred to as “stand alone” projects.

Projects in such context are the concrete manifestations of the development plans in a specific place and time. One can think of projects as subunits and bricks of programs, which constitute the national plan (usually the direction is from plans to projects). We have to note that projects could be either public or private. It is the smallest operational element prepared and implemented as a separate entity in a national plan or program.

From the above discussion it can be seen that the major difference between a project and a program is not so much in objectives stated but lies more in scope, the details and accuracy. A project is designed with a high degree of precision and details as regards its objectives, features, calculation of returns and implementation plan. A program by contrast is general, lacks details and precision and aims at a broader goal often related to a sectoral policy of a country or departmental policy of an organization.

Perhaps the distinction between projects and programs would be clear if we see the basic characteristics of projects. Projects in general need to be **SMART**.

**S – Specific**

A project needs to be specific in its objective. A project is designed to meet a specific objective as opposed to a program, which is broad. A project has also specific activities. Projects have well defined sequence of investment and production activities and a specific group of benefits. A project is also designed to benefit a specific group of people.

**M - Measurable**

Projects are designed in such a way that investment and production activities and benefits expected should be identified and if possible be valued (expressed in monetary terms) in financial, economic and if possible social terms. Though it is sometimes difficult to value especially secondary costs and benefits of a project, attempt should be made to measure them. Measure costs and benefits must lend themselves for valuation and general projects are thought to be measurable.

**A – Area bounded**

As projects have specific and identifiable group of beneficiaries, so also have to have boundaries. In designing a project, its area of operation must clearly be identified and delineated. Though some secondary costs and benefits may go beyond the boundary, its major area of operation must be identified. Hence projects are said to be area bounded.

**R – Real**

Planning of a project and its analysis must be made based on real information. Planner must make sure whether the project fits with real social, economic, political, technical, etc. situations. This requires detail analysis of different aspects of a project.

**T – Time bounded**

A project has a clear starting and ending point. The overall life of the project must be determined. Moreover, investment and production activities have their own time sequence. Every cost and benefit streams must be identified, quantified and valued and be presented year-by-year.

## Project Analysis

All countries, but particularly the developing countries, are faced with the basic economic problem of allocating resources such as labor at all levels of skill, management and administrative capacity, capital, land and administrative and other natural resources and foreign exchange, to many different uses such as current production of consumer goods and public services or investment on infrastructure, industry, agriculture, education and other sectors. These different uses of resources, however, are not the final aim of the allocative process; rather they are the means by which an economy can marshal its resources in the pursuit of more fundamental objectives such as the removal of poverty, the promotion of growth and the reduction of inequality in income. Pursuit of one objective (better income distribution) however, may involve a sacrifice in other objective (rapids growth).

A choice therefore has to be made among competing uses of resources based on the extent to which they help the country achieve its fundamental objectives. If a country consistently chooses allocations of resources that achieve most in terms of these objectives, it ensures that its limited resources are put to their best possible use.

Project analysis is a method of presenting this choice between competing uses of resources in a convenient and comprehensible fashion. In essence, project analysis assesses the benefits and costs of a project and reduces them to a common denominator.

#### **1.5 Types of Agricultural Projects:**

**1. Water Resource Development:** A capital intensive project. To reap the benefit of irrigation the farmer should not ignore the supporting services as extension, marketing, credit and transportation both for handling crop produced and supply of inputs needed. The economic analysis must take full account of all the attributes costs and benefits streams.

**2. Agricultural Credit:** It makes the viable commercial operation. To enable a larger number of farmers to make needed investment to improve their income and level of living.

**3. Agricultural Industries and Commercial Development:** These projects help improve the adequacy and timeliness of input supplies and specialized services to farming, forestry and fisheries or else help improve the storage, processing and marketing systems.

## 1.6 The project format: advantages and limitations

### Advantages of the project format

To enable analysis of projects a project format is conventionally used. This format provides an analytical framework for a proposed investment in which the cost and benefit accounts are prepared year by year in the form of a project cost and benefit stream. The project format, which is an analytical tool, has some advantages. It establishes the framework for analyzing information from a wide range of sources. Information from a wide range of sources feed into the framework (**framework to analyze information from many sources**). Since a good plan depends on accuracy of information, the framework enables various specialists to judge the accuracy of the information provided and the appropriateness of the assumptions (**framework to involve** **many specialists**).

The format also gives an idea of costs year after year, so that those responsible for providing the necessary resources can do their own planning (**cost year by year**). If costs and benefits of the project are determined in financial terms, it would be easy for financing institutions to act accordingly.

The project analysis tells us something about effects of a proposed investment on the participants in the project, whether they are farmers, small firms, government enterprises, or the society as a whole (**Estimate effects on participants**). Project format would give the chance to assess the financial impact of a project on each participants of the project. It would also enable the analyst to identify ‘gainers’ and ‘losers’ in the project area.

The administrative and organizational problems likely to be encountered during the implementation of the project are also detailed in the project format (**judgment about** **administrative and organizational problems**). This enables the planners to make arrangements for strengthening the project management if this appears weak. At the same time manager’s planners and stake holders are given better criteria for monitoring the progress of implementation as the objectives, targets and work plans are set out at the onset of implementation (**criteria for monitoring progress of** **implementation**).

The project format also enables us to systematically examine different alternatives (**encourage systematic examination of alternatives**). Alternative formulating of the same project or formulation of other projects, etc. are important. The project format facilitates systematic and objective examination of a range of alternatives. For instance, the effects of a proposed project on national income and other objectives can be compared with the effects of projects in other sectors or other projects in the same sector, or alternative formulations and designs of the same project can also be compared. For a nation, the project format gives a chance to assess and compare different alternative projects and designed so as to choose and prioritize those projects that would meet the most of the objectives. Similarly for a private owner the project format enables to assess not only different alternative projects but also different design of the same project. This would enable him to choose a project and a design that would maximize his objective(s). Thus, it is an essential tool for allocating capital resources from the viewpoint of a nation and/or private owner.

Another advantage of the project format will be to **help contain the data problem**. Once a project has been initiated local information on which to base the analysis can be efficiently gathered, field trials can be conducted and judgment can be made about the institutional and cultural factors that might influence the choice of project design and its implementation. Information gathered in the process of project preparation and analysis could alleviate the data problem of developing countries.

### Limitations of the project format

Although the project format has so many advantages the result of project analysis must be interpreted with caution. The first limitation is about the quality of the data used. The quality of project analysis depends on the quality of the data used and of the forecast of costs and benefits (**depends on the quality of data used**). Unrealistic assumptions about market shares, future prices, yield potentials, relevance of inflation, the quality of project management, etc., can make garbage out of the project analysis. Of course the reliability of the results of project analysis depends upon the extent to which the data, assumptions, and forecasts diverge from the reality. Whatever efforts could be made there is always some errors associated with these issues.

The technique of project analysis provides limited support in judging the risk and uncertainty surrounding the project (**limited usefulness in judging risk**). Project planning is a forward looking. The realization of the expected net benefits of the project depends on the extent that actual future circumstances deviate from the expected future circumstances. Because future circumstances will change, project analysts must judge the risks and uncertainty surrounding the project. But the question is how are these risks and uncertainty being taken in to account in the analysis and choice of projects.

Of course there are such techniques as sensitivity analysis, Monte Carlo simulation analysis, decision tree analysis, etc. that are used to incorporate the risk element in the analysis and choice of projects. Nevertheless, these techniques never can diminish or avoid the risk problem. In summary, even though these techniques are useful and essential, they are not a panacea of problems related to risks and uncertainty.

The other limitation of project format is that project analysis is a species of what economists call ‘**partial analysis**. As a species of development planning models, project analysis treat each project independent of the whole economy and usually lacks consistency and overall feasibility. The apparent interconnection of a project with the other projects and with the whole economy cannot be assessed. In this respect, the project-by-project planning approach is most often used in those economies where statistical data for an aggregate or complete main-sector model are lacking. Therefore, it is advisable not to translate directly the net-benefits of projects to the overall economy.

The greater the difference among alternative projects the more difficult it would be to use formal analytical techniques to compare them (**difficult to compare widely differing projects**). Financial costs and benefits of a project can be used for comparison of alternative projects that are similar in their nature. Such comparison can be easily made between different alternatives of the same project. Alternatives can also safely be compared if the benefits and costs of alternative projects can be valued well. But objective comparison can hardly be made if costs and benefits of one project are estimated reasonably well while not possible for the other (for instance between irrigation and health projects). In such instances, the allocation of resources between different projects must be made more subjectively and as a part of overall development plan.

Another limitation of the project format is the underlying conceptual problem about the valuation based on the price system (**Limitations of prices as indicators of value**). The relative value of goods and services depends on the relative weights that individuals participating in the system attach to the satisfaction they can obtain with their income. Moreover, although project analysis must also address ‘externalities’ or side-effects, it is mostly difficult to value these effects objectively. One can, at best, value for instance external costs of water or air pollutions or health hazards using proxy measures which in itself involve subjective judgment. In addition, it is mostly address such broader objectives as national integrity, national sovereignty, regional integration, etc. Of course the analyst could make his own justification but the ultimate decision about such broader objectives will be left to political leaders. However the problem is the way they consider various tradeoffs may not lead to the same conclusions a project analyst would reach.