Plan Implementation and Educational Management

Course Code 8617

Department of Educational Planning
Policy Studies & Leadership

ALLAMA IQBAL OPEN UNIVERSITY ISLAMABAD
PLAN IMPLEMENTATION AND EDUCATIONAL MANAGEMENT

B. Ed (1.5 Years)

Code: 8617 Units: 1–9

Department of Educational Planning
Policy Studies and Leadership
Faculty of Education
Allama Iqbal Open University
Islamabad
DISCLAIMER

The materials for the content development of this course were initially collected and prepared from several sources. A substantial amount of effort has been made to review and edit the materials and convert them into this courseware. References and acknowledgements are given as required. Care has been taken to avoid errors, but errors are possible. Please let us know of errors or failed links you discover.

(All Rights Reserved with the Publisher © AIOU 2017)

Edition:......................... First
Printing: ......................... 2017
Quantity: ........................
Price ........................... Rs.
Typesetter: ...................... M. Hameed Zahid
Printing Coordinator: ............ Printing Press Operations Committee
Publisher: ....................... Allama Iqbal Open University, Islamabad

EDUCATIONAL PLANNING POLICY STUDIES AND LEADERSHIP DEPARTMENT
FACULTY OF EDUCATION
ALLAMA IQBAL OPEN UNIVERSITY
PREFACE

This program B.Ed 1.5 year provides academic opportunities to teachers, prospective school leadership. It aimed at providing education and training facilities to teachers, administrators and master graduates in the country to meet increasing demand for trained personnel in educational fields.

Leadership and Management is one of the specialization areas of the B.Ed 1.5 year program. This area of specialization is being offered by the Educational Planning Policy Studies and Leadership Department (EPPSL) of Allama Iqbal Open University Islamabad in second semester. Course code 8617 title “Plan Implementation and Educational Management” is one of the courses of this specialization area with the aim to provide comprehensive knowledge and skill of modern educational management and plan implementation strategies.

This course is the result of long experience and concerted efforts of the initial teams of course development, course revision, reviewers, editors and course coordinator who made valuable contributions to this edition. We are extremely thankful to the all consultants, contributors and reviewers for providing valuable guidance in updating the material to provide learners an implementation perspective to their jobs as educational planners and administrators.

Prof. Dr. Nasir Mehmood
Dean Faculty of Education
COURSE TEAM

Members of Course Development Team:
1. Dr. A. R. Saghir
2. Mrs. Rashida Parvez

Writers:
1. Dr. Zulkaif Ahmad
2. Dr. A. R. Saghir
3. Mrs. Razia Abbas
4. Dr. M. Arif Zia
5. Dr. S. M. Aijaz
6. Dr. Hamid Khan Niazi

Editors:
1. Mr. Abdul Wadood
2. Mr. Aftab Ahmad

Course Coordinator: Ms. Tahira Bibi

Course Reviewer: Ms. Tahira Bibi

Typesetter: M. Hameed Zahid
**CONTENTS**

<table>
<thead>
<tr>
<th>Page No.</th>
<th>Introduction of the Course</th>
<th>vi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Objectives of the Course</td>
<td>vii</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-1:</strong> Feasibility Testing and Plan Formulation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-2:</strong> Elaboration of Education Plans and Project Formulation</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-3:</strong> Project Formulation and Implementation</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-4:</strong> Project Appraisal</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-5:</strong> Project Evaluation</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-6:</strong> School Mapping</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-7:</strong> Decision Making</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-8:</strong> Organizational Behavior (Communication, Motivation and Human Relations)</td>
<td>173</td>
</tr>
<tr>
<td></td>
<td><strong>Unit-9:</strong> Control in the Management of Educational Personnel</td>
<td>193</td>
</tr>
</tbody>
</table>
INTRODUCTION TO THE COURSE

Course 8617, entitled as Plan Implementation and Educational Management-I is one of the basic courses required for obtaining degree in B.Ed 1.5 Year from this University. This course has been revised, improved and updated with a view to include the latest developments in the field and most relevant materials in the course.

In introduction to Plan Implementation and Management, the general introduction of the whole course has been given. It includes the general objectives of the course, organization and brief of the blocks and units of the course.

The unit on “Feasibility Testing” introduces the planning cycle and the place of feasibility testing. The activity of feasibility testing occurs before actual plan formulation and after costing the needs and setting the targets. This is an activity which attempts to ensure the possibility of begin successful of the plan. This is systematic scrutiny of all built-in assumptions and objectives upon which the achievement or non achievement of the plan will depend.

‘Feasibility Testing’ includes the review and scrutiny of internal and external aspects of a plan. Internal aspects are supposed to be inconsistencies in the plan regarding the nature and qualities of education. External factors include the reactions from public, pressure groups and socio-cultural interests etc.

Then comes the stage of ‘Plan Formulation’. The qualities of a good planning document are explained as brevity and clarity of the contents, self contained comprehensiveness i.e. the plan should include all aspects of education, sequential and logical presentation of contents, and visual and graphic presentation of summary tables etc.

The Unit-2 explained the process of “Plan Elaboration” and differentiates between Programmes and Projects. The process of elaboration includes the preparation of Programmes and Projects and regionalization of activities. The various steps of elaboration have been explained. At the end of the unit a brief introduction to project identification, formulation and its costing has been given. The basic proformas required to be filled in, prepared by Planning commission called the form of PC-I, PC-II, PC-III, PC-IV, etc, have been given in the annexure.

The Unit-3 gives a comprehensive background how a project is to be formulated and activities are to be included in Project Cycle. These include Sector Analysis, Project Identification, Preparation, Appraisal, Execution control and Evaluation, classification and components of Projects have been given in detail and at the end of the units a case-study Project preparation has been given to explain the process.

The units “Project Appraisal” deals with the concepts of balanced development, sectoral interdependence, sectoral demands and functions of project appraisal. The techniques of project appraisal have been explained by giving example of each. Various aspects of project appraisal like technical, commercial, financial, managerial and organizational have been highlighted. Case-studies of Appraisal of Educational Projects have been given to explain and prepare the suitable designs of appraisal.
The unit on Project Evaluation deals with the concept and process of Project evaluation. Evaluation is a feedback mechanism to make sure that the launched operation is working effectively. Evaluation has been differentiated from appraisal as the latter is a broader term and stands for a procedure to ascertain whether assigned responsibilities have been performed. Project appraisal and evaluation have been explained by giving examples. Some categories of evaluation have been explained. A procedure to design the evaluation studies has been suggested and given in detail.

The concept of “School Mapping” is very popular and useful in educational planning. This concept refers to the cause of providing sufficient and where required, the educational needs in an effective and systematic way. It involves an exercise of locating the points and sizes of educational needs to be provided in a specific area. No activity of education planning can be enunciated without taking proper exercise of school mapping.

The unit on “Education Decision Making” includes the importance of decision making in educational administration in various contexts and levels of decisions. Various elements of decision making like goals, information diagnosis, alternative and methodology of this process have been explained.

The unit “Organizational Behavioral Dynamic” includes discussion on three main topics, communication, motivation and human relations. Computation in an organization plays an important role in its functioning. The mode and effectiveness and channels explained with examples. Motivation and providing incentives workers boost up the pace and progress of work. The various techniques of motivation and forms of incentives have been dissociate in detail. Human relations among workers develop directly have their impact on the efficiency of the personnel. A good manager tries to understand and develop healthy relations among the workers. Healthy relations play a very important role as the teachers and learners have to work for achieving specific purposes. The factor underlying human relations and their implications have been dealt with in good details.

Course Coordinator
OBJECTIVES OF THE COURSE

After studying this course you will be able to:
1. Describe the various stages of planning including feasibility testing, plan formulation, programming, project formulation etc.
2. Undertake planning activities with the application of concepts and techniques given in the content of this course.
3. Have knowledge about the modern management techniques.
4. Tell about the concepts and practices in the context of educational management in areas of planning, organization, decision making, personnel selection and training personnel evaluation etc.
5. Comprehend and prepare PC forms, ADP and other planning document.
6. Explain the nature and methods of resource mobilization.
7. Understand the meaning and importance of communication, motivation and human relations in an organization.
8. Know the channels and approaches to communication.
9. Know the techniques of motivating workers, for efficient working.
10. Appreciate good human relationships in an organization and their limitations.
11. Understand problems of communication
12. Understand and describe the nature and essentials of control.
13. Develop control devices and apply them in educational management.
14. Integrate the concept of control into an educational organization.
FEASIBILITY TESTING AND PLAN FORMULATION

(Adapted from UNESCO Training Material)

Revised by: Ms. Tahira Bibi
OBJECTIVES OF THE UNIT

When you have gone through this unit, you should be able to:

1. Define the place of feasibility testing within the educational planning process.
2. Justify the need for feasibility testing
3. Distinguish between external and internal aspects of plan feasibility, giving concrete examples of both.
4. Outline suitable procedures whereby the public gets involved in the task of feasibility testing.
5. Understand the practical use of the educational plan/document.
6. Reorganize the need to make the education plan/document self-contained.
7. To choose the appropriate format for educational plan and the method of its presentation.
8. To use graphical aids and statistical summaries to enhance the communicational effectiveness of educational plan.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Place of Feasibility Testing in the Planning Process</strong></td>
<td>4</td>
</tr>
<tr>
<td>1.1 The Concept of Feasibility</td>
<td>4</td>
</tr>
<tr>
<td>1.2 The Need for Feasibility Testing</td>
<td>5</td>
</tr>
<tr>
<td>1.3 External and Internal Aspects of Plan Feasibility</td>
<td>5</td>
</tr>
<tr>
<td>1.4 Feasibility Testing: a Simulated Pre-run of the Plan</td>
<td>8</td>
</tr>
<tr>
<td><strong>2. Formulation of an Education Plan</strong></td>
<td>9</td>
</tr>
<tr>
<td>2.1 Brevity and Clarity</td>
<td>10</td>
</tr>
<tr>
<td>2.2 Self-contained Comprehensiveness</td>
<td>11</td>
</tr>
<tr>
<td>2.3 Contents and Order of Presentation</td>
<td>11</td>
</tr>
<tr>
<td><strong>3. Visual Presentations and Summary Tables</strong></td>
<td>15</td>
</tr>
<tr>
<td>3.1 Need for Graphics and Tables</td>
<td>15</td>
</tr>
<tr>
<td>3.2 Educational Plan as a Financial Statement</td>
<td>15</td>
</tr>
<tr>
<td>3.3 Guidelines for Implementation</td>
<td>16</td>
</tr>
<tr>
<td><strong>4. Self-Assessment Questions</strong></td>
<td>17</td>
</tr>
</tbody>
</table>
1. Place of Feasibility Testing in the Planning Process

1.1 The Concept of Feasibility

Feasibility testing as discussed in this unit is closely related to, but not identical with, the concept of plan evaluation that we shall take up later. Both concepts have the critical assessment and possible revision of an educational plan as their main objectives. But they differ in that they come to be applied at different stages in the planning process.

The planning process consists of the following stages:

(i) Collection and processing of data with regard to certain phenomenon.
(ii) Diagnosis of situation
(iii) Formulation of policy in the light of diagnosis of situation.
(iv) Assessment of future needs in terms of materials and manpower etc. to implement the policy as per (iii) above.
(v) Costing of future needs as determined at No (iv) above.
(vi) Target setting i.e. fixing a time point for achieving the objectives.
(vii) Testing the feasibility of plan.
(viii) Formulation of plan in the light of experience and feedback gained through feasibility testing.
(ix) Plan implementations.
(x) Plan evaluation.
(xi) Revision and re-planning etc.

Planning is a circular activity. These stages can be presented graphically as shown below:

[Diagram of the planning cycle]

Collection and Processing of Data
Diagnosis of Situation
Formulation of Policy
Assessment of Future Needs
Costing of Needs
Target Setting
Feasibility Testing

Plan Formulation

Plan Implementation

Plan Evaluation

Revision and Re-planning
Feasibility testing occurs somewhere between the target setting and the plan formulation stages of the planning cycle. It is a working step that can be completed within a rather shorter period of time, as opposed to the continuing activity of plan evaluation which accompanies the planning process over a substantial portion of the total plan period.

1.2 The Need for Feasibility Testing

The concise Oxford Dictionary defines feasible as practicable, possible, manageable, serviceable and plausible. It is obvious that any educational plan should possess all these properties. But this is not to claim that, through feasibility testing or any other device, we can make our educational plans completely watertight. No amount of feasibility testing can exclude the eventuality of failure in part or whole altogether. Too many factors, which an educational plan incorporates lie outside the jurisdiction and control of educational authorities. The points of contact between education and the world around it are too numerous to permit the kind of precise planning that is possible with the “closed systems” we encounter in the natural science and in this we are fortunate, despite the headaches it causes the planners.

Thus educational plans are based on a vast set of assumptions – on future conditions and situations, which we anticipate on the actions and reactions of groups and individuals on which we count to achieve our plan targets, on resources we believe will be available, on support and cooperation we expect to mobilize, etc. if our plan is a bond one, we will probably not be aware of all these assumptions, if our plan is reasonably well thought out, we will try to spell out these assumptions and make sure that these are possible, if it is a good plan, they will for the most part by plausible and practicable.

Feasibility testing may therefore be defined as the systematic scrutiny of all those built-in assumptions on which the achievement or non-achievement of the plan targets will depends.

For a plan to be feasible, it is not enough to spell out objectives and targets, while leaving the whole range of management, logistics and personnel problems, as well as the public’s like views and reactions, should behind the general assumption that everything is going to work out.

1.3 External and Internal Aspects of Plan Feasibility

The question that we must examine when testing a plan for its feasibility fall into two broad categories.

(i) On the one hand, one would examine the interface between the educational system and its environment. How will the educational plan targets affect the different systems “surrounding” education, i.e. the political, economic, socio-cultural subsystems of society? Are we reasonably sure that there won’t be adverse feedback reactions from those systems which might impede the achievement of plan targets? Perhaps the very achievement of one or the other education target may trigger of undesirable political, economic or social reactions? Experienced educational planners certainly know many examples of plans which proved unfeasible because such feedback reactions from “out-side” were not taken into account.
The question that we have to examine in this connection may be called external aspects of plan feasibility.

(ii) On the other hand, an educational plan may in itself contain a number of inconsistencies and bottlenecks that went undetected at the target setting stage. Even if there is no adverse feedback reactions from “outside” these inconsistencies within a plan can cause serious failures. Are we sure that our targets for curriculum reform and teacher training tally? Is what we try to achieve in secondary education consistent without targets for primary education? Will our scheme of hardship allowances for teachers lend the expected support to the plan target of strengthening education in far-flung rural areas? Such questions are concerned with the relationships among different elements of the plan, they deal, in other words, with the internal aspects of plan feasibility.

Very often it is the kind of ‘hidden angle’ that nobody thought of some unforeseen difficulty quite outside the plan itself, which makes the planner realize his beautiful plan was externally not feasible. Groups of people, business interests, other Government agencies, etc find they are affected by the plan, and they react to it – quite legitimately, and in their own best interest but taking the planner completely by surprise. The element of surprise will be hard to eliminate; but it may be reduced if, at an early stage of the planning process, the planners systematically considered four dimensions of external plan feasibility.

a. Reactions which stem from socio-cultural attitudes and values.

b. Pressure from political interests and power groups.

c. Lack of support from the administrative bureaucratic machines.

d. Incompatibility with economic conditions and market forces.

Let us illustrate each of these with an example:

The educational plan of country ‘A’ calls for the setting up of a new type of village schools with a strongly ‘ruralised’ curriculum and a terminal structure of 6 grades without the possibility of proceeding to conventional secondary schools. Quite unexpectedly, however, parents show violent opposition to this plan. They prefer to send their children to urban schools because they look upon the new schools as second-class institutions barring their children from an urban schools. Planners are forced to realize that their programme, despite its good intentions, is not feasible as it comes up against established socio-cultural attitudes and values.

Another example which illustrates adverse feedbacks from political interests and pressures the plan of country ‘B’ proposes a systematic stock-taking, co-ordination and recasting of out-of-school education under the jurisdiction of the Ministry of Education; but other government departments oppose this part of the plan, out of fear that they might lose some of their existing programmes. The planner, reluctantly, realizes that the political support so vital to his plan is not forthcoming.

An example where the administrative machinery is unable to lend the necessary support; Country ‘C’ has launched a massive test-book production programme. Free books are to be distributed to the country’s all district offices and from there to even the remotest village school. But the logistics involved are more than the administrative
machinery is able to handle; transport is not ready in time, no one thought of storage facilities, district supervisors complain of insufficient travel allowances. The books get stuck in warehouses and district offices, some reach the urban schools, but very trickle down to the villages for which they were meant. The plan was much too ambitious in its reliance on the administrative machinery.

And a fourth example, highlighting the case where an educational plan collides with economic conditions and market forces: Country ‘D’ realizing the need for more agricultural teachers, sets up special teacher training colleges and provides generous fellowships in an effort to boost enrollments. All seems to go well, until the planners realize that 95% of the new graduated agricultural teachers are spirited away by private companies offering much higher salaries. The plan, it seems, fails because it ignored prevailing economic conditions and market forces.

With regard to external plan feasibility, the planner has to consider socio-cultural values, political pressures, economic conditions, and the capacity of the “Administration as possible stumbling block; in the way of plan implementation.

Testing an educational plan for internal feasibility is, fortunately, a less complex undertaking. As long as the plan is comprehensive, i.e. covers all levels and types of education, and the full spectrum of qualitative as well quantitative programmes, the planner should find it possible to rule out the kind of unpleasant surprises so characteristics of external feasibility problems. Yet a comprehensive plan is not necessarily a coherent and consistent plan. Situations such as the following are to be avoided.

Country ‘E’ plans a vigorous campaign to reduce dropout of students at the elementary school level. The campaign is successfully implemented and as a result, the number of elementary school graduates seeking to continue secondary schools rises drastically; the plan for expansion of secondary education, unfortunately, has failed to take this additional demand for school places into account; admission restrictions, disgruntled parents and student unrest are the inevitable consequences.

The forward-looking and ambitious education plan of country ‘F’ entails the target of upgrading the qualification of all primary teachers through a massive in-service training programme. Planners have made sure that the costs of this training can be met from the plan budget; but they have over-looked one fact; thousand of upgraded, fully qualified, teachers will move up into higher salary grades involving an additional charge on the educational budget which simply cannot be met during this plan period. The programme is financially not feasible.

Country ‘G’ considers the radical transformation of primary education curricula as the centre-piece of its educational plan. While the new syllabi for grade-1 students are scheduled to be introduced after one year, it is suddenly found out that the country’s teacher training colleges will require at least 3 years revising their own curricula, re-orienting their master teachers, adding the necessary workshops to instruct future teachers in practical arts etc, before they can hope to turn out the kinds of new teachers which the new primary curriculum requires. The target of launching this new curriculum within one year is, therefore, internally not feasible.
Frequently, lack of internal feasibility is caused by poor coordination of the draft plans of different departments or sections. Where planners restrict their job to just piecing the different departmental submissions together, adding a global price-tag and passing on the product as “the educational plan”, inconsistence of the kind we illustrated above are practically unavoidable.

With regard to internal plan feasibility, the planner’s main task is to ascertain consistency between different sub-programmes of the plan. Inconsistencies frequently occur between the planned output of one cycle and the planned intake of another, between curricular changes and the necessary re-orientation of teachers, or between financial forecasts and the ‘hidden’ costs of some programmes.

1.4 Feasibility Testing: A simulated Pre-run of the Plan

We have now understood the need of feasibility testing, and have illustrated some of the more common feasibility problems, distinguishing between ‘internal’ and external aspects of plan feasibility. Where, in the educational planning process, the task of feasibility testing has its place, should also be clear: it is after the ‘target setting’ stage, but before proceeding to a more detailed ‘plan formulation; that a plan must be tested for feasibility.

What remains to be clarified, however, is how best a planner or an educational planning unit should go about the task of feasibility testing. There are two possible approaches, a ‘closed’ and an ‘open’ one:

In the CLOSED APPROACH, discussions and brainstorming sessions among the staff of an educational planning unit are the chief modality of tackling feasibility problems. Their purpose is to clear up and rectify any inconsistencies between different elements or sub-programmes of the plan, and to anticipate the reactions of the public, once the plan is presented for implementation.

As for the first of these two purposes, i.e. the clearing up of internal plan/inconsistency, the ‘closed’ approach usually gives good results. But it is much weaker in correctly anticipating the reactions of that very wide spectrum of groups and people that we call ‘the public’. Discussion behind closed doors only serve to further accentuate the isolation of planners, and leave them in the false belief that citizens are ready to accept any change, or undergo any reorganization, if the resultant system is ‘efficient’ in technical or economic terms.

An ‘OPEN APPROACH’ to feasibility testing is, therefore, to be advocated: All those affected by the plan, those benefiting along with those expected to make sacrifices, those whose political support for the plan will be vital and those who are to carry the burden of its implementation, should be brought together in order to “TEST OUT” their reactions.

The forum on which OPEN APPROACH to feasibility testing can be practiced is usually that of a public hearing. Representatives of all those sections of the public concerned with the acceptance and implementation of a plan should be invited to such hearings. In their presence, the plan will be put on the test stand for a simulated pre-run. If these are the objectives and targets of our new education plan, are the representatives of parents associations, employers, teacher unions, political parties, etc, ready to accept
and support them? If these are the new curricular guidelines, will the leaders of religious organization, representatives of private schools, parents, etc, cooperate? If these are our requirements in new text-books do the representatives of the paper and printing industry have the capacity to produce them? If these are the additional administrative and supervisory tasks which our plan requires, are the educational administrators ready to undertake them?

These are the kind of questions that would be raised in a public hearing of the draft educational plan. The Planner’s role in such hearings is to argue as if the plan had already been launched for implementation, to help all parties around the table realize the challenges involved for each of them, to test out their reactions, and to identify the points of resistance likely to obstruct the implementation of the plan.

In this manner, plan hearings serve an important critical function. Not only will they pinpoint feasibility problems that planners by themselves would never have thought of, but they would also bring to the kinds of changes required to make the plan acceptable, practicable or, in short, feasible.

Behind this immediate purpose lies, of course, the broader concern of gaining maximum popular support for a plan which after all, will not only claim a very large share of the nation’s resources, but will also involve and commit more people than most other government services taken together. Feasibility testing through public hearings is important tasks of ‘opening up’ the educational planning process. Indeed, if the public gets involved in educational planning from the very start, many impracticable or unacceptable proposals would have been screened out by the time the plan is tested for feasibility.

2. FORMULATION OF AN EDUCATION PLAN

The concepts we have so far discussed and the techniques studied should ultimately help us in gaining skills for the crucial function of formulating an educational plan.

This is a crucial function because it represents the logical presentation of all the analysis, the thinking, the evaluation of problems, and choices among alternative solutions, which the policy–makers, planners, administrators and their advisers had been engaged in for months or even years.

This brief document, called the educational plan, has also to set out the principal arguments, constraints, strategies and policies as well as the basic reasons for major policy decisions. This has to be done with such comprehensiveness as to enable the legislators of the country to evaluate the appropriateness of what is proposed and the justification for the resources requested. Finally, it must also be clear enough for the implementers to know how the action proposed in it is to be initiated and executed.

The preparation of a comprehensive and clear document, to serve all these purposes, requires great care and expertise.

We shall consider some of the basic factors which the educational planner should take into consideration when formulating an educational plan.


2.1 Brevity and Clarity

By the time an educational planner settles down to formulate his plan whether it be for the entire nation, a state, province, region or even an institution – he has completed all the major steps in the planning process; he would have:
- Collected and processed the data,
- Diagnosed the present situation and identified problems to be solve,
- Assisted the policy-makers in the formulation of the policy and obtained the necessary policy directions from the appropriate authority,
- Assessed the future needs to accomplish the set objective according to the prescribed policy.
- Coasted the needs and compared with probable resource availability,
- Made the necessary adjustments in needs, to be fulfilled, to match with resources and set the targets for the plan period, and,
- Tested the consistency and the feasibility of targets and made the final choices.

Now task is to put his findings and conclusions in a suitable format so that obtains the authorization of the appropriate authorities. In the case of a national plan, this authority could be the supreme legislature of the country. For each the final authorizing agency, his submissions have to pass through several sections and channels of the administrative machinery.

None of the concerned authorities would have the time to go through a detailed document. But still they want to know every salient argument, choice and decision with supporting evidence for claims made in respect of targets and justification for resources asked. Without such information, they would not be able to approve the plan or make useful suggestions for its improvement.

To get an idea of the complexity of these tasks, we may examine the average length of educational plan currently formulated in most of the Asian countries:

(i) National Educational Plans (5–7 years):
- (a) As a chapter in a National Development Plan; 30–50 standard pages.
- (b) As an independent plan for education only; 100–150 standard pages.

(ii) State / Provincial Educational Plans:
About the same size as national educational plans.

(iii) Regional Educational Plans:
- (a) As a part of an integrated regional development plan; 1–20 standard pages.
- (b) As a separate document; 40–60 standard pages.

Considering what educational planners would wish to communicate first to his approving authorities and then the plan implementers these are very short documents. He has to develop techniques of conveying the maximum amount of information within the least confines of space, and that too has to be clear. Let us consider these on the basis that we are entrusted with the formulation of national or provincial plan as an independent document (i.e. 100–150 pages.).

Clarity is not merely a linguistic problem, although that can be a very important one in formulating educational plan. A plan document is not the place for one to show off his professional and technical abilities with complex mathematical formulas.
The plan is meant to be approved by policy-makers and legislators, who are not expected to be professional educators, economists or planners. Further, a plan is meant for mass consumption for the public to know and get involved in what is done for the development of education. The average reader needs plain and such statements. Nor could one expect its straight-forward, non technical style of language is a great asset.

The major problem of clarity is one of logic. The need for a logical selection of content, a logical sequence in presenting relevant facts and figures and a systematic well through-out marshalling of arguments in support of decisions cannot be over-emphasized. A disjointed, incoherent and factually unsupported plan document can bring years of valuable work to naught.

2.2 Self-contained Comprehensiveness

As important as brevity and clarity, is the need to make a plan document self-contained and comprehensive.

A plan must stand by itself and be self-explanatory in the sense that the reader, whether he reads it for purpose of signifying approval or for the information or to obtain directives for action, should be able to get all the salient information without having to go elsewhere.

This is often a very difficult test and, therefore, it is not altogether rare to find a companion volume of data, mostly statistical data, presented with a plan. Even then, a person who does not refer to the companion volume should be able to gain an adequate picture of what is planned, why and how the planned action is to be accomplished.

Just as a plan document should be self-contained, it must be comprehensive also.

It should cover with equal emphasis and attention the total ground to which the plan relates. Not only should the analysis of the whole educational system into components be clear but the interrelation, interdependence ad interaction of components must also be vividly depicted.

If this is done carefully, the consistency and interdependence of the various proposals and the composite nature of the final objectives, aimed at, would become very clear.

2.3 Contents and Order of Presentation

Noting the above qualities of brevity, clarity and self-contained comprehensiveness as essential attributes of an educational plan, let us examine the contents which would be most desirable.

Keeping in view that a plan should be self-contained necessitates the first chapter to be an Introduction, in which the basic information of the country/state/province and its educational system, with relevant aspects of the economic situation, is give. The following topics may be considered for inclusion according to their relevance to the subsequent plan proposals:

**General:**

(i) Location area, geographical and administrative divisions, major geographical features.

(ii) Main historical events as relevant to development of education or affecting the current socio-political value system.
(iii) Population, vital statistical, urban rural distribution; and ethnic linguistic 
distribution, if relevant to education: Demographic bases identified for 
consideration in the plan.
(iv) Main features of the economy – national accounts (BNP /GDP /NI): growth rates; 
sectors of the economy and distribution of the economically active population; 
productivity by sectors; educational profile of the labour force; employment and 
unemployment; person power supply. Economic bases identified for consideration 
in the plan.
(v) Socio-cultural features, highlighted in the Plan, if any.

**Educational:**
(i) Landmarks in the evolution of modern education.
(ii) Legal base for education national objectives of education. Constitutional directives, 
if any education laws etc.
(iii) The structure of the educational system with appropriate graphical representation of 
levels, types and forms of education.
(iv) basic educational statistics relating to number of institutions, enrolments, outputs 
(graduates), and teachers – preferably in a well-constructed table.
(v) The national expenditure on education – sources; by levels and types, government 
and private institutions; total expenditure – trends in percentage of GNP, 
government revenue and annual budget. Unit costs by levels and types.

This background should not exceed 1/10th of the total length of the plan document. 
When this introductory chapter is written out, one question should be repeatedly asked 
before any item or information is added:

Is this information essential to understand the socio-economic backdrop against 
which the proposals for the development of education are formulated?

If the answer cannot be unreserved YES, that information can safely be dropped 
because experience shows that tone is apt to devote more time and energy to this chapter, 
not only because it is the first but also because the general information is more readily 
available for reproduction.

The second chapter as to advance all the reasons and arguments to support the 
proposals which would be made further on. This chapter may be in the form of a global 
diagnosis of the Education Situation”. The following topics may be appropriate for 
inclusions:
(i) The legal, administrative and professional arrangements made for the control of 
education in relation to:
   (a) The diversity of public sector agencies responsible for education.
   (b) The role of the private sector in education.
   (c) Academic standards of private educational institutions.
   (d) The involvement of the private sector as well as different agencies of the 
public sector in planned development of education.
(ii) The structure and curriculum in the light of:
   (a) Relevance to national development.
   (b) Broad national objectives of education.
   (c) Estimated manpower needs of the country.
   (d) Rural unemployment and migration to urban areas.
   (e) Regional imbalances.

(iii) The position and problems relating to:
   (a) Methods of teaching and educational technology.
   (b) Text-books and educational material
   (c) Educational research.

(iv) The past trends and present situation as regard enrolment in different levels and types of education in relation to:
   (a) Participation rates of corresponding age groups.
   (b) Retention
   (c) Repeaters
   (d) Dropouts
   (e) Graduate
   (f) The level-wise internal efficiency of the educational system.

(v) The situation with regard to the teaching profession (i.e. teachers, instructional personnel and teacher educators):
   (a) Age and sex distribution.
   (b) Regional imbalance in teacher-pupil ratio.
   (c) Qualification and professional competence.
   (d) Salaries, service conditions and status.
   (e) Facilities for pre-service training and the gap, if any, between the output of teacher training institution and professional growth.

(vi) The structure, curriculum and methods of instruction of teacher training institutions.

   It is not only because of the resources constraint. There is also the problem of the absorptive capacity of a system. Future needs assessed would be coasted for comparison with foreseeable resources and tested for feasibility. The result of this complex exercise— which really is the heart of planning is the setting of targets. Targets are set on the basis of national objectives and policy as well as the strategies selected for the purpose of accomplishing the targets. The third chapter on a “Policy, Strategy and Target” could thus be developed:
   (a) Stating the objective of education on which the plan is based.
   (b) Highlighting changes in the educational policy, envisaged.
   (c) Explaining the strategies to be utilized in the achievement of the objectives.
   (d) Embodying the proposed structure for the educational system.
(e) Outlining the recommended reforms in curriculum, educational technology and methods.

(f) Containing recommendations for the improvement of school supervision and administration.

(g) Presenting quantitative targets in respect of the following for the plan period, explaining how estimates were made and apportioning them between public and private sectors:
   (i) Enrolments in different levels and types of education (by grade or class or year) as well as in programmes of non-formal education.
   (ii) The number of teachers and instructional personnel for different levels, types and forms of education and subject specializations.
   (iii) Enrolment in training institutions and education departments of universities.
   (iv) The number of teachers for different teacher training institutions and subject specialization.
   (v) Scholarships, bursaries and other assistance to students at different levels of education.
   (vi) The personnel required for educational supervision and administration and supporting services, including ancillary services.
   (vii) Requirements in plan facilities for both instructions and administration.

(h) Describing steps and projects for qualitative improvement.

Thus, prepares with quantitative information suitably displayed in tables, this chapter could constitute the bulk of the plan and offer a complete picture of what is planned to be done and achieve.

The fourth chapter must necessarily be on the “Financial Implications of the Plan” and it would:

(a) Analyse the cost of education and sources of financing.
(b) Examine trends and anticipated developments in the unit costs.
(c) Explain the basis of computation of costs in respect of projects for which unit costs are not applicable.
(d) Discuss the major assumptions and policy decision on which the financial provisions of the plan will be based, and
(e) Outline the constraints and limitations which led to the revision of targets, if applicable.

The last two chapters are most important. In fact, when a central planning organization prepares the education sector plan for inclusion in a national development plan or when a Ministry of Education incorporates different regional plans into an integration national educational plan, these two chapters tend to be reproduced in to or in suitable summary form.
3. VISUAL PRESENTATIONS AND SUMMARY TABLES

3.1 Need for Graphics and Tables
In spite of all care and trouble which the educational planner would take to write up a concise plan document with detailed information as spelled out above, he has to remember that the most important authorities handling the plan would rarely read it. With practices, they have developed ways and means of packing up the main trends and highlight of a plan concentrating on charts, graphs and tables.

The planner stands to benefit if he sprinkles his document with relevant visual presentations (but not too much to be confusing). There are a few aspects of the plan, which are vital and those busy approving authorities should have their attention drawn to them. A very effective way to append to the four chapters a series of summary tables.

Well prepares tables depicting the following would be appropriate and useful:

(a) Enrolment targets, level-wise and type-wise, with comparisons relating to age and sex composition, urban-rural distribution etc.
(b) Personnel requirements to achieve the targets of the plan (e.g. teachers, other instructional personnel, teacher educators, supervisors and inspectors, administrators, specials in supporting and ancillary services, etc).
(c) Important projects such as for qualitative improvement or non-formal education with details of:
   (i) Objective of the project.
   (ii) Target for the plan period.
   (iii) Personnel required (available and additional).
   (iv) Financial outlay:
      (a) Total
      (b) For each year of the plan period.
   (v) Proposed date of commencement.
   (vi) Duration.
   (vii) Proposals for follow-up action of termination of project.
(d) Plant and facilities, with details of quantity and cost, needed in the form of:
   (i) Additional plant and facilities for each year.
   (ii) Replacement for each year.
(e) Annual statements of targets, financial outlay and phasing of projects, with details on the basis of computing costs.
(f) A summary of the total financial outlay according to levels, types and forms of education and items of expenditure to give a bird’s eye view of plan, and
(g) Source of finances for the implementation of the plan.

3.2 Educational Plan as a “Financial Statement”
Though implied in the list of contents and also in the series of summary tables one very important aspect of plan has to be underscored.

The plan is ultimately a financial statement.
The most vital information, which an educational plan contains, pertains to:

(i) The total financial outlay which the authorities are prepared to allocate to education development over the plan period.
(ii) The apportionment of the total outlay to various levels and types of education related technical and supporting services.

(iii) The distribution of the total outlay to various levels and types of education related technical and supporting services.

At two very significant points in the planning process, this information becomes vitally important:

First, when the plan is examined by appropriate authorities, whose approval is to be obtained.

Second, when the plan is to be implemented.

The approving authorities, especially at the ministerial and parliamentary levels tend to concentrate more on the financial implications of a plan than even its objectives and targets. The most thumbed pages are a plan passing through such authorities is the financial summaries.

Similarly, when a plan is to be elaborated into programmes and projects in preparation for implementation, it is the financial information that plays major role. It is the usual experience of an administrator that the main constraining factor in plan implementation is the financial allocation.

If a plan is correctly coasted and each project is properly supported by a realistic financial allocation, that plan as a better chance of being implemented. But most educational plans are known to suffer from both these defects.

On account of the importance of financial information at both these vital points, one cannot over-emphasize the need for reliable cost data, on one hand, and the complete and accurate costing of all anticipated plan activities on the other. A simple dictum to be remembered by a planner is: “No money no project and no projects – no plan”. Experience as shown that activities, unsupported by adequate allocation of resources, rarely – if at all – take off the ground.

3.3 Guidelines for Implementation.

In some countries, the plan document proceeds to discuss how the targets of the plan are to be achieved. Such guidelines would identify the requirements of new laws, new organizations, reforms of existing procedures etc. We have left it as optional. It would be quite appropriate for a plan document to incorporate useful hints for managing the implementation, particularly where legislative and organizational changes are faintly outlined.
4. SELF-ASSESSMENT QUESTIONS

Q. 1 Determine at which stage of planning process, the plan should be tested for feasibility? What pre and post steps should be taken for this activity.

Q. 2 What sort of problems can be faced while looking into the internal and external aspects of plan feasibility?

Q. 3 Whom should the planner involve during feasibility testing?

Q. 4 Are there any links between feasibility testing and participatory planning? What are those links?

Q. 5 Why is plan formulation a crucial function? What are the principal characteristics of an educational plan?

Q. 6 In what different form do countries present their educational plans? What is the format used in our country?

Q. 7 What are the broad headings under which an educational plan is usually presented? Compare this format with what was adopted in the current education plan of your country.

Q. 8 Analyze the summary table in the current educational plan of Pakistan. Are they adequate?

Q. 9 To what extent is it correct to consider an educational plan as a “financial statement”? Can there be a plan without reference to financial implications?

COMPARE YOUR ANSWERS WITH THE RELEVANT PORTIONS IN THE UNIT.
ELABORATION OF EDUCATION PLANS AND PROJECT FORMULATION

(UNESCO Training Material)

Revised by: Ms. Tahira Bibi
OBJECTIVES OF THE UNIT

When you have gone through this unit, you should be able to:

1. Understand why a plan needs to be elaborated.

2. Define Programming, regionalization of plan, hierarchy of projects and differentiate between Programmes and Projects.

3. Undertake Programmes and Project identification.

4. Understand why a project has to be analyzed and presented in operational details to facilitate implementation.

5. Identify basic elements of a project.

6. Spell out each activity of a project in terms of agency, cost, time and space.

7. Understand the special features of a project format including graphical aids to presentation.

8. Formulate a project.
## CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Elaboration of Educational Plans</td>
<td>23</td>
</tr>
<tr>
<td>1.1 Need for Elaboration of a Plan</td>
<td>23</td>
</tr>
<tr>
<td>1.2 Elaboration of a Plan</td>
<td>23</td>
</tr>
<tr>
<td>1.3 Process of Plan Elaboration</td>
<td>23</td>
</tr>
<tr>
<td>1.4 Programme</td>
<td>24</td>
</tr>
<tr>
<td>1.5 Project Identification</td>
<td>24</td>
</tr>
<tr>
<td>1.6 Regionalization</td>
<td>25</td>
</tr>
<tr>
<td>1.7 Hierarchy of Activities</td>
<td>25</td>
</tr>
<tr>
<td>2. Process of Programming and Project Identification</td>
<td>26</td>
</tr>
<tr>
<td>2.1 Step-I Identify Sub-objectives</td>
<td>26</td>
</tr>
<tr>
<td>2.2 Step-II Relate Targets and Provision to Sub-objectives</td>
<td>27</td>
</tr>
<tr>
<td>2.3 Step-III Determine Administrative Unit</td>
<td>27</td>
</tr>
<tr>
<td>2.4 Step-IV Regionalize the Programme</td>
<td>28</td>
</tr>
<tr>
<td>2.5 Step-V Analyze Package of Action and Identify Projects</td>
<td>28</td>
</tr>
<tr>
<td>3. From Project Identification to Project Formulation</td>
<td>28</td>
</tr>
<tr>
<td>3.1 What has to be done and How?</td>
<td>28</td>
</tr>
<tr>
<td>3.2 Elaboration of Activities</td>
<td>29</td>
</tr>
<tr>
<td>4. Work Plan or Plan of Operations (PLANOPS)</td>
<td>30</td>
</tr>
<tr>
<td>4.1 Management Functions</td>
<td>30</td>
</tr>
<tr>
<td>4.2 Project Budget</td>
<td>31</td>
</tr>
<tr>
<td>4.3 Format of Project Formulation</td>
<td>32</td>
</tr>
<tr>
<td>4.4 Management Aids to Project Formulation</td>
<td>33</td>
</tr>
<tr>
<td>5. Self-Assessment Questions</td>
<td>34</td>
</tr>
<tr>
<td>Annexure-I</td>
<td>PC-I Form Part A, B, C</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Annexure-II</td>
<td>PC-II Form</td>
</tr>
<tr>
<td>Annexure-III</td>
<td>PC-III Form</td>
</tr>
<tr>
<td>Annexure-IV</td>
<td>PC-IV Form</td>
</tr>
<tr>
<td>Annexure-V</td>
<td>PC-V Form</td>
</tr>
<tr>
<td>Annexure-VI</td>
<td>Specimen of Organizational Chart</td>
</tr>
<tr>
<td>Annexure-VII</td>
<td>Specimen of Gannt Bar Chart</td>
</tr>
<tr>
<td>Annexure-VIII</td>
<td>Specimen of Multiple Activity Chart</td>
</tr>
<tr>
<td>Annexure-IX</td>
<td>Specimen of Flow Chart</td>
</tr>
</tbody>
</table>
1. ELABORATION OF EDUCATIONAL PLANS

1.1 Need for Elaboration of a Plan

Whether an educational plan forms only a section of a national development plan or is an independent document, it remains a brief and succinct presentation of objectives, policies, targets and financial outlay. It is an outline specifically designed to obtain the approval in principle of higher authorities. Hence the information included in it has to be just enough to enable these authorities to see the “overall perspectives” the “total picture” the “direction of action” and the “global commitment” of the nation. But such an outline is in no way adequate for purposes of implementation.

For implementation many more details are necessary. Each action unit which has to be put into operation must be clear.

Ultimately, the plan has to be cut up into packages of action with sufficient information on each as regards:
- What are the activities to be undertaken?
- Who will undertake them?
- What resources will they consume?
- What targets will they accomplish?
- How will the success of these activities be evaluated?

The process of working out detailed answers to these questions so as to help implement the plan is called the elaboration of a plan.

1.2 Elaboration of a Plan

The purpose of educational planning is to ensure systematic accomplishment of a series of activities leading towards the achievement of set objectives of educational development.

Elaboration of the Plan becomes the most significant link activity between planning and implementation. It can be said that the success of implementing a plan rests for the most part on thoroughness with which the plan elaboration is done.

However well a plan is formulated, it cannot be successfully implemented until one has answers to the questions that were raised above.

It must, therefore, be stressed that the educational planner should devote as much attention to plan elaboration as he devotes to plan formulation.

1.3 Process of Plan Elaboration

The function of plan elaboration was referred to above as that of cutting up the plan into “packages of action”. “Packages of action” is a loose term but it conveys what the educational planner has to undertake. In more formal terminology, two broad categories of packages of action are identified as:

(a) Programmes
(b) Projects
1.4 Programme

Programme is the larger package of action and each programme consists of several projects. A programme is a combination of activities of related areas. It is defined as a set of projects which collectively aim at achieving one or more related objectives of a plan.

The project are linked together in that they are so complementary that if one is to be carried out then all should be. Further they are all intended to be carried out during a certain period by the same administrative unit.

Example

In the educational plan of country ‘X’, the development of science education is an objective. This has to be achieved by increasing intake to science classes, building and equipping laboratories, revising and modernizing science curricula, producing text-books and other teaching materials, providing pre-service and in-service training to teachers and establishing a machinery for evaluation of science education. Each of these packages of action, either as they are or in a modified form, is a project, and the package which incorporates all these interrelated projects, is a programme. In the elaboration of this plan, therefore, a programme for development of science education is clearly indicated. In actual practice, a particular branch, unit, department or institute of the education ministry will handle its operation.

The task of identifying such programmes is called programming. Programming is the first step in plan elaboration.

1.5 Project Identification

The second step in plan elaboration is project identification. Project is any unit of expenditure which is administered or accounted for as an identifiable group of activities. A project achieves one or more targets, which collectively lead to the accomplishment of a sub-objective of the programme.

Example

In the example given above, a number of packages of action were seen as constituting the programmes. These packages of action may now be put together in a form that units of expenditure which can be administered or accounted for together are identified. The result of this exercise maybe the identification of two groups of activities such as the following:

1. Curriculum development: design and production of text-books and teaching materials, pre-service and in-service training of teachers, and evaluation to be administered by the curriculum development center.
2. Design and construction of laboratories, design and production of equipment and distribution of equipment – to be administered by the Educational Building and Facilities Branch.

Each group satisfies the criteria for a project. Thus these programmes can be elaborated into two projects which for facility of reference may be called:

Project-I: Curriculum, teaching materials and training.
Project-II: Physical facilities and equipment.
1.6 Regionalization

Where the plan applies to the whole country, each programme and project will also apply to the whole country. For purpose of implementation the plan as a whole or each project has to be cut up according to administrative regions. The project of distributing the provision made in a plan, a programme or a project to states, provinces, municipalities, towns or institutions is called regionalization. Regionalization is optional. All programme or projects need not or cannot be regionalized.

Regionalization for the most part, is only a superficial division of provisions to respective regional / local institutional / administrative units. But it is important where a regional / local / institutional administrative authority takes over the responsibility for the implementation of a well defined part of a programme or project. Such a part of a programme or project becomes a regional programme or project.

1.7 Hierarchy of Activities

The plan, programmes, regional programmes, projects and regional projects constitute a hierarchy in the following manner:

```
<table>
<thead>
<tr>
<th>National Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme A</td>
</tr>
<tr>
<td>Regional</td>
</tr>
<tr>
<td>Prog-I</td>
</tr>
<tr>
<td>Projects</td>
</tr>
</tbody>
</table>
```

This type of elaboration of a plan into a hierarchy of activities is an essential preparatory stage for certain management functions. It is very important for determining the organizational structure that is required for plan implementation. It provides a sound basis for delegation of functions and authority. Further, it is a necessary step if the budget is to be prepared according to the technique of PPBS (Planning – Programming – Budgeting – System).
In PPBS, the same kind of hierarchical arrangement of activities is reflected by a system with a different nomenclature:

```
Plan
   Major Programme
      Sub – Programmes
          Programme Elements
```

2. **PROCESS OF PROGRAMMING AND PROJECT IDENTIFICATION**

The authority that undertakes programming and project identification just fulfill few important conditions:

(a) He must have a thorough grasp of the objectives, the targets and the provisions of the educational plan.
(b) He should also have an equally thorough understanding of the administrative organization available for plan implementation. He should, in particular, know:
(c) Source of policies,
(d) Power structure of the organization,
(e) Lines of authority,
(f) Operational barriers, and
(g) Personal limitations and other constraints.

The process of programmes and project identification may be analyzed into five steps.

2.1 **Identify sub-Objectives**

The first task which he has to perform is to spell out the objectives of the plan in operational terms usually, plans are based on objectives which are couched in very general terms. But to implement them, they have to be elaborated. In the process a series of sub-objectives are developed.

**Example:**

In a certain educational plan, one of the stated objectives is: the improvement of the quality of education by relating the content and method; to the socioeconomic needs of the nation. To restate this objective in operational term is to identify a set of sub-objectives as follows:

(i) Re-appraisal and reconstruction of curricula and the installation of mechanisms for continuous curriculum development and renewal.
(ii) Design and production of text-books, teaching materials and teaching aids.
(iii) Review of instructional methods and experimentation on innovative approaches to learning and teaching.
(iv) Wider use of educational technology.
(v) Improvement of pre-service teacher education.
(vi) In-service training and professional growth of teachers.
(vii) Improvement of physical facilities.

If the educational plan has been correctly formulated the plan itself would have given adequate clues to this type of operational sub-objectives. But if the plan is sketchy and hastily formulated, this task falls on the authority which handles programming and project identification.

2.2 Relate Targets and Provisional Sub-Objectives

The next task is to relate the targets and provision of the plan with the operational sub objectives.

Example:
Take sub-objective (iv) in the above example at 2.1 go through the plan targets to see if any targets are set or provisions made for programmed instruction, educational broadcasting, audio visual aids etc. If there are any targets and provisions of these, the extent to which a programme or a project could be developed will become clear. If neither targets nor provision exist, then sub-objectives will not result in a programme or a project.

Note: Where an important sub-objective cannot be developed into a programme or a project due to the absence of targets or provisions in a plan, this fact has to be noted for remedial action when the revision of the plan is undertaken.

2.3 Determine Administrative Unit

The third task is to find out the administrative unit which exists in the country to undertake the overall supervision and guidance of the activities required to achieve each of the sub-objectives for which targets and provisions are found in the plan. In this analysis it may be found that more than one sub-objective falls within the purview of one such administrative unit. In theory, all such activities, which lead to one sub-objective or a number of related sub-objectives, constitute a programme if they fall within the purview of one administrative unit. But this is not a hard and fast rule. There is nothing to prevent one administrative unit handling a number of parallel programmes.

Here the principal criterion is as follow. Are the activities constituting the program to complementary and inter-related that the accomplishing of one depends on the accomplishments of another? If they are, they definitely constitute a programme.

Note: It is also possible that none of the existing administrative units are able to handle some of the activities connected with some sub-objectives. In this case, remedial action in the form of establishing the requested administrative organization has to be taken before the implementation stage.
2.4 Regionalize the Programmes
Once the programming is completed, one has to ascertain whether any of the programmes has to be further elaborated into regional / local / institutional programmes. It is after this exercise that one proceeds to identify projects.

2.5 Analyze Packages of Action and Identify Projects
Project identification is best handled by making a complete list of all the packages of action which are to be accomplished to achieve the sub-objective(s) of each programme.

Then these packages of action are groups together on the following criterion. Can they be administered as one unit or accounted for under one unit of expenditure? These, which can be administered or accounted for constitute a project.

Note: A specific target or a set of related targets of the plan will invariably coincide with a project. The same administrator unit may handle several projects simultaneously. Some projects may need regionalization into regional / local / institutional projects.

Experience is a key to programming and project identification. The above discussion would show that both programming and project identification are relatively simple operations. They are governed by straight-forward principles. Tasks to be performed do not call for any complex computational or technical skills. What they demand most specifically is a effect knowledge of the organization and its procedures. They are management operations involving the application of logic and commonsense. The skills necessary for them have to be acquired through practice.

3. FROM PROJECT IDENTIFICATION TO PROJECT FORMULATION
In the foregoing pages, the elaboration of an educational plan was discussed upto the point of identifying projects. A further steps has to be gone through before the minimum requirements for effective implementation are met. That final step is called project FORMULATION, (sometimes called Project Design or Drawing up a Scheme). Project formulation is an exercise in micro-planning that is planning the details of a package f action which is designed to achieve a particular objective or target.

In micro-planning a project, one asks himself a primary question.

3.1 What has to be done? And How?
A project, it was repeatedly emphasized earlier, is a group of activities which can be administered or accounted for as a unit. As such it consists of a series of related activities, jobs or items of work.
3.2 Elaboration of Activities

Assume that in elaborating an educational plan, the following project has been identified:

“Production and publication of a set of new science text-books for Grades VI-VIII.”

This project has now come up for formulation. That means it has to be planned in full operation details. So as a first step, the activities constituting the project must be identified and listed. To perform this function effectively one must have either specialized knowledge and experience in the jobs related to the project or the advice of experts or both. Often, this is an appropriate occasion for collective thinking, he it through more conventional methods like conferences and committees or through modern techniques like Brainstorming and Delphi Method.

In elaborating a period into activities one must be cautious about the degree of details.

One must ensure that activities are detailed but not necessarily too detailed. The tendency to elaborate activities at this stage into unnecessary details has to be checked, because one may lose sight of the wood for the trees, that is, be overwhelmed by details and not get the overall picture.

Example:

Let us assume that the above project involves the construction of an institute for which land has to be acquire. So the acquisition of land as the first activity, may simply be referred to as “Buying the land”. This is adequate for operational purposes at the level of elaborating the project into constituent activities. It is not necessary to elaborate that activity into such detailed operation as scouting for land, selection of suitable plot, examine of title deeds, drafting deeds of sale, payment to seller, signing of deed, physical possession of land etc, etc.

In project formulation, one limits himself to essential details and no more.

Let us proceed with the formulation of the project mentioned in para 3.2 above. We identify the essential activates which have to be performed so as to complete the project. It will be seen that the project has two major components, each demanding the attention of two different groups of specialist namely:

(i) Production of the science text-books, which is a professional educational function to be handled by curriculum developers, science educators, text-book writers and illustrators, editors, class-room teachers etc.

(ii) Publication of the science text-books, which is a technical or mechanical function to be handled by printers and binders.

Consulting the appropriate experts of each group, the project formulator would list such activities as:

**Group (i)**

- Determination of Science Curriculum of the Grades Concerned:
- Elaboration of the curriculum into lesson units.
- Selection and orientation of lesson-writers and illustrators.
- Preparation of draft lessons.
- Pre-testing draft lessons in class-room situations.
- Revision of lessons.

**Group (ii)**
- Selection and Orientation of Printers:
  - Making of blocks.
  - Type-setting and making pages.
  - Proof-reading and approval of printings.
  - Printing.
  - Binding.
  - Distribution.

Now we have a clearer idea of what has to be done in order to produce the necessary text-books.

**4. WORK PLAN OR PLAN OF OPERATION (PLANOPS)**

The elaboration of the project into constituent activities has answered the first part of the primary education. What has to be done? The project formulator then proceeds to answer the second part: And how? In this process he expands his primary question into at least four queries.

(i) By whom are the activities to be done? (Agency or agencies)
(ii) What resources (men, money, materials) will they need? (cost)
(iii) When and during what period will they be done? (Time)
(iv) Where will they be done? (Space)

When each activity is analyzed in terms of these questions, the project formulator succeeds in giving the project operational framework. It may be remembered as the ACTS framework (i.e. Agency-Cost-Time-Space)

**4.1 Management Functions**

Each of the four questions raised above leads to a specific management function in following manner:

(i) **Agency Organizational Analysis and Design:**
Where in the existing organization can the activity be done? Is there a need for a new organization? What kind of organization does the activity need? How can it be created?

(ii) **Cost-Resource Planning, Costing and Budgeting:**
What are the resources needed in terms of men, materials, buildings and facilities, equipment etc? How much and of what kind, quality or description? On what data their cost be determined? How much do they cost?
(iii) **Time Phasing and Time Scheduling:**
In what sequence are the activities undertaken? And how much time will they consume? When should each activity commence? How can they be phased to ensure the best utilization of resources?

(iv) **Space Design and Installation of control Mechanisms:**
Where an activity should be done best from the point of view of both quality and effective use of resources? How are activities done at different locations to be coordinated and controlled? What kind of control mechanism does each activity need?

As a result of carrying out these management operations, the project formulator makes a series of significant decision. Here again, he would, ordinary, seek the advice of his experts. The net result of these decisions is the definition of the “Work Plan” of the project.

The “Work Plan” which provides the answer to the question, “How is the project to be accomplished?” is the heart of project formulation.

Sometimes, the “Work Plan” as called the “Plan of Operations” and is widely known by its abbreviation: PLANOPS. The work plan or PLANOPS may be presented in the form of a table such as the following.

<table>
<thead>
<tr>
<th>Activity</th>
<th>By Whom</th>
<th>Location</th>
<th>Starting Time</th>
<th>Duration</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
(a) If all activities are to be undertaken by the same agency, the second column, (by whom) may be omitted and the requisite information given in an explanatory note.
(b) Not all the activities can be individually coated. As such, the cost column may be blank in respect of certain activities.

4.2 **Project Budget**

As important as the Work Plan is the project budget. It is expected to present in a form the total resources required for the project both in terms of the quantity and the kind of services or good and in terms of the total cost involved.

The cost data, which were collected in preparing the ACTS framework of the project, are utilized for the preparation of the project budget. Sometime standard rates or costs are determined by appropriate national authorities. In that case, costing will be on the basis of such standard rates or costs.

A project budget is related to the financial year of the country or the institution. Thus if a project which spreads over three years is expected to begin at the middle of a financial year of the country (say in June 2010), the project budget will be for the following years:

<table>
<thead>
<tr>
<th>Year</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010/11</td>
<td>6 months</td>
</tr>
<tr>
<td>2011/12</td>
<td>Full year</td>
</tr>
<tr>
<td>2012/13</td>
<td>Full year</td>
</tr>
<tr>
<td>2013/14</td>
<td>6 months</td>
</tr>
</tbody>
</table>
The project budget also follows the form of budgeting accepted in the country or the institution. Where any modern budgeting systems like performance budgeting or Programme budgeting are in force, the project budget should be in the same comparison, where necessary.

But it does not mean that a project budget should not be based on modern budgeting systems if the national budget is of the conventional line item type.

### 4.3 Form of Project Formulation

With the list of activities, the Work Plan and the project budget as the central features, the project formulator is at liberty to design his own format for the presentation of a project. The only criteria that should apply are:

- Clarity
- Completeness, and
- Accuracy

But most countries and institutions have set forms for project formulation. In some, only the outline to be followed is prescribed, in others, set of printed forms are in use. These outlines and forms are referred to by different names such as “Project Proposal, Project Design, Drawing up Schemes, Project Activity Details” etc. Where such aids are prescribed, the project formulator is helped in his task to a very great extent.

In Pakistan, a set of proforma’s (PC–Forms) prepared by the Planning Commission are used for preparation of project proposals. Following are the forms prepared by the Planning Commission:

- **PC-I Form**: It is a proforma for development projects (separate form have been designed for use in education, training of manpower, and for use in health, family planning and social welfare).
- **PC-II Form**: The PC-II proforma has been designed for survey and feasibility studies to be conducted before preparation of the final project.
- **PC-III Form**: This form is meant for use to monitor quarterly progress of a project.
- **PC-IV Form**: This proforma provides guidelines for preparation of a report on completion of the project.

**Note:** See specimen of PC proformas appended to this unit as Annexure-I-V.

The PC-I proforma which serves as the basic project document consists of the following three parts.

- **Part ‘A’ – Project Digest**: The project digest specifies the name of the project; authority responsible for its sponsoring, execution operation and maintenance; relationship of the project with the objectives of the sector; cost of the project and expected outcome of the project.
- **Part ‘B’ – Project Description and Financing**: The part ‘B’ of the project gives details of the project and (if properly used) provides guidelines for implementation and monitoring of the project. This part also provides for phasing of work and financial requirements, and a justification for the project in terms of the results of the project.
Part ‘C’–Project Requirements: The part ‘C’ contains details about the requirements of project such as manpower, facilities, material supply and equipment etc.

4.4 Management Aids to Project Formulation

Form: Although it is desirable that the project formulator designs his own proforma to suit his needs and requirements of the project, is convenient, for the purpose of economy and for standardization of project formulation in the sector, to use the PC-I form approved by the Planning Commission.

Graphic Representation: In the final presentation of a formulated project, graphic aids such as the following can be effectively utilized:

(i) **Gantt or Bar Charts:**
   This simple device/technique enables the commencement and the duration of each project activity to be represented as a bar on calendar.

(ii) **Flow Charts:**
   Using internationally recognized symbols, the flow of work in a project is charted from commencement to completion.

(iii) **Organizational Charts:**
   These represent the division of work, nature, and extent of delegation and lines of authority and accountability within the organizational structure designed for the project.

(iv) **Multiple Activity Charts:**
   It is a form more detailed and dynamic than organization chart. It show distribution of work, nature and extent of delegation and key points of responsibility.

   **Note:** See specimens of these graphic aids, appended to this lesson unit as Annex VI, VII, VIII & IX.

Network Analysis:

Network analysis is a management technique which helps project formulation in two significant ways:

(a) **Alternative methodology for preparing the “Work Plan”**. It provides a methodology for analyzing a project into activities and sequencing such activities in a logical manner. In this respect, it is an alternative method for the preparation of the “Work Plan” or PLANOPS.

(b) **Graphic Aid**. It serves as a graphic aid at the time of presenting a formulated project.

The principal, on which network analysis is based, is that all activities constituting a project are interrelated or are a grid. Two techniques of network analysis that can be utilized in the formulation of an educational project are PERT (Programme Evaluation and Review Technique) and CPM (Critical Path Method)
5. SELF-ASSESSMENT QUESTIONS

Q. 1 Why is plan elaboration necessary?

Q. 2 When is elaboration required for implementation of the plan?

Q. 3 How would you differentiate a project from a programme?

Q. 4 What is regionalization of a project? Is it necessary? Give examples?

Q. 5 What are the essential elements in project formulation?

Q. 6 What are the major decisions made in developing the ACTS – framework of a project?

Q. 7 Under what column headings would you prepare a work plan or PLANOPS? What column you regard as optional?

Q. 8 How is project formulation systematized in our country?

Q. 9 What graphic aids can you use in project formulation?
PC-1 FORM

GOVERNMENT OF PAKISTAN
PLANNING COMMISSION

PROFORMA FOR DEVELOPMENT PROJECTS
(SOCIAL SECTORS)

- Education, Training and Manpower
- Health, Nutrition, Family Planning & Social Welfare
- Science & Technology
- Water Supply & Sewerage
- Culture, Sports, Tourism & Youth
- Mass Media
- Governance
- Research

- Date of Preparation of PC-1:
- Instructions to fill in PC-1 are attached
1. Name of the Project

2. Location

3. Authority responsible for:
   i. Sponsoring
   ii. Execution
   iii. Operation and maintenance
   iv. Concerned federal ministry

4. Plan Provision

5. Project objectives and its relationship with sectoral objectives

6. Description, justification and technical parameters

7. Capital cost estimates

8. Annual operating and maintenance cost after completion of the Project

9. Demand and supply analysis

10. Financial Plan and mode of financing

11. Project benefits and analysis
   i. Financial
   ii. Social benefits with indicators
   iii. Employment generation (direct and indirect)
   iv. Environmental impact
   v. Impact of delays on project cost and viability

12. a) Implementation schedule
    b) Result Based Monitoring (RBM) Indicators.

13. Management structure and manpower requirements including
    Specialized skills during execution and operational phases.

14. Additional projects/decisions required to maximize socio-economic benefits from
    the proposed project
15. Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Social Sector projects.

Prepared by _________________________
Name, Designation & Phone#
Date:

Checked by _________________________
Name, Designation & Phone#:
Date:

Approved by _________________________
Name, Designation & Phone#:
Date:

Forwarded for consideration of competent forum (as applicable)
By Chairman / ACS (Dev), P&D Department
(for provincial projects)
Name, Designation & Phone#:
Date:

Forwarded for consideration of competent forum (as applicable)
By Federal Secretary / PAO
(for Federal / Federally Funded (partial or full) projects)
Name, Designation & Phone#:
Date:
GOVERNMENT OF PAKISTAN
PLANNING COMMISSION

Instructions to Fill-in PC-I Proforma (Social Sectors)

1. **Name of the Project**
   Indicate name of the project.

2. **Location**
   - Provide name of District/Province.
   - Attach a map of the area, clearly indicating the project location.

3. **Authorities responsible for**
   Indicate name of the agency responsible for sponsoring, execution, operation and maintenance. For provincial projects, name of the concerned federal ministry be provided.

4. (a) **Plan provision**
   - If the project is included in the medium term/five year plan, specify actual allocation.
   - If not included in the current plan, what warrants its inclusion and how is it now proposed to be accommodated.
   - If the project is proposed to be financed out of block provision, indicate:

     | Total block provision | Amount already committed | Amount proposed for this project | Balance available |
     |------------------------|--------------------------|---------------------------------|------------------|

     (b) **Provision in the current year PSDP/ADP**

5. **Project objectives**
   - The objectives of the sector/sub sector as indicated in the medium term/five year plan are reproduced. Indicate objectives of the project and develop a linkage between the proposed project and sectoral objectives.
   - In case of revised Projects, indicate objectives of the project, if different from original PC-I.
   - Where possible, the project objectives should be aligned with women development / empowerment, Government of Pakistan’s policies concerning gender equality and attainment of MDGs.
   - Elaborate how the project will contribute to implement the above mentioned policies.
6. **Description and justification of project**
   - Describe the project and indicate existing facilities (for male and female separately, wherever possible) in the area and justify the establishment of the Project.
   - Provide estimated number of male and female beneficiary of the project.
   - In case where a project is benefitting female population, include measures that address the constraints faced by them so as to ensure their participation in all respect of the project.
   - Provide technical parameters and discuss technology aspect of the Project.
   - Provide details of civil works, equipment, machinery and other physical facilities required for the project.
   - Indicate governance issues of the sector relevant to the project and strategy to resolve them.

| In addition to above, the following sector specific information be provided |

**Education, training and manpower**
   - Give student-teacher ratio for the project and the national average for the proposed level of education.
   - Year-wise proposed enrolment of the institution for 5 years (male and female separately).
   - For scholarship projects, indicate number of scholarships to be awarded each year along with selection criteria (male and female bifurcation may be given for award of scholarships).
   - Provide faculty strength in relevant discipline, in case of expansion of facilities.
   - Indicate the extent of library and laboratory facilities available in case of secondary, college and university education.
   - Provide details of technical staff required for operation & maintenance of laboratories.

**Health, nutrition, family planning and social welfare**

a) **Health projects**
   - Indicate whether the proposed facilities are preventive or curative.
   - Bifurcate the facilities between indoor, outdoor and department-wise, giving detail of departments exclusively meant for women.

b) **Nutrition**
   - Indicate the infrastructure and mechanism required for the project.
   - Measures taken for involvement and participation of the community.
   - Net improvement in the nutritional status of target groups in quantitative terms, indicating number of male and female separately.
c) **Family planning**
- Provide information relating to motivation and distribution sub-system.
- Give benchmark data and targets relating to number of couples to be approached and number of contraceptives and other devices to be distributed.
- Mode/mechanism of advocacy and awareness, including women’s access to information and reproduction health facilities and dissemination of information on side effects of use of contraceptives.

**Water supply & sewerage**
- Present and projected population and water availability/demand.
- Indicate source and water availability (mgd) during next 5, 10, 20 years.
- For waste water/sewerage, provide present and future disposal requirements, gaps if any and proposed treatment methods and capacity.
- Indicate present and proposed per capita water supply in the project area, comparison be made with water supply in similar localities.
- Indicate whether the proposed project is a part of the master plan. If so, provide details.

**Culture, sports, tourism & youth**
- Existing and projected flow of tourists in the country/project area.
- Capacity of existing departments to maintain archaeological sites / museums.
- Relationship of archaeological projects with internal and foreign tourism.
- Provide that the project is developed with gender perspective with regard to intangible culture.

**Mass media**
- Indicate area and population to be covered with proposed project.

**Research**
- Indicate benefits of the research to the economy, giving gender dynamics, wherever possible.
- Mention number of studies/papers to be produced.
- Indicate whether these studies would result in commercial application of the process developed (if applicable).

7. **Capital cost estimates**
- Indicate date of estimation of Project cost.
- Basis of determining the capital cost be provided. It includes market survey, schedule rates, estimation on the basis of previous work done etc.
- Provide year-wise estimates of Physical activities by main components as per following:

<table>
<thead>
<tr>
<th>Items</th>
<th>Unit</th>
<th>Year-I</th>
<th>Year-II</th>
<th>Year-III</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Phasing of Capital cost be worked out on the basis of each item of work as stated above and provide information as per following.

<table>
<thead>
<tr>
<th>Item</th>
<th>Year-I</th>
<th>Year-II</th>
<th>Year-III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Local</td>
<td>FEC</td>
<td>Total</td>
</tr>
<tr>
<td>A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Million Rs)

In case of revised Projects, Provide
- Projects approval history, year wise PSDP allocations, releases and expenditure.
- Item-wise, year-wise actual expenditure and Physical progress.
- Justification for revision of PC-I and variation in scope of the project if applicable.
- Item-wise comparison of revised cost with the approved cost and give reasons for variation.
- Indicate exchange rate used to work out FEC in the original and revised PC-I.
- Indicate gender implications, if any, and measures to address them in the revised project.

8. Annual operating cost
- Item-wise annual operating cost for 5 years and sources of financing.

9. Demand supply analysis
   (Excluding science & technology, research, Governance & culture, sports & tourism sectors)
- Existing capacity of services and its supply.
- Projected demand for ten years (male and female separately, if possible).
- Capacity of projects being implemented both in the public & private sector.
- Supply – demand gap.
- Designed capacity & output of the proposed project
10. **Financial plan**

*Sources of financing*
Indicate clearly the sources to finance local and foreign exchange cost of the project, i.e. how much to be provided Federal PSDP, Provincial ADP, foreign loan, foreign grant, community, NGO or sponsoring agency’s own resources as per following details:

(a) **Equity:**
Indicate the amount of equity to be financed from each source:
- Sponsors own resources
- Federal government
- Provincial government
- DFI’s/banks
- General public
- Foreign equity (indicate partner agency)
- NGO’s/beneficiaries
- Others

(b) **Debt**
Indicate the local & foreign debt, loan repayment schedule, interest rate, grace period and repayment period for each loan separately. Also indicate agency responsible for repayment of the foreign loan.

c) **Grants along with sources**

d) **Weighted cost of capital**

11. (a) **Project benefits and analysis**

Financial: Income to the project along with assumptions.

Social: Quantify benefits to the target group, showing number of women and children separately, wherever possible

Environmental: Environmental impact assessment negative/positive

(b) **Project analysis**

- Quantifiable output of the project
- Unit cost analysis
- Employment generation (a) direct and indirect and (b) male and female, if possible.
- Impact of delays on project cost and viability
12. (a) **Implementation of the project**
- Indicate starting and completion date of the project.
- Item-wise/year-wise implementation schedule in line chart correlated with the phasing of physical activities.

b) **Result Based Monitoring (RBM) Indicators**
- Indicate Result Based Monitoring (RBM) Framework indicators, including gender sensitive indicators, wherever possible, in quantifiable terms in the following table.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Input</th>
<th>Output</th>
<th>Baseline Indicator</th>
<th>Targets after Completion of Project</th>
<th>Targeted Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. **Management structure and manpower requirements**
- Administrative arrangements for implementation of the project.
- Manpower requirements during execution and operation of the project be provided by skills/profession (The project should provide equal opportunity for hiring of female workers)
- Job description, qualification, experience, age and salary of each job be provided.

14. **Additional projects/decisions required**
- Indicate additional projects/decisions required to optimize the investment being undertaken on the project.

15. **Certificate**
- The name, designation and phone # of the officer responsible for, preparing and checking be provided. It may also be confirmed that PC-I has been prepared as per instructions for the preparation of PC-I for social sector projects.
- To ensure ownership, the PC-I along with certificate must be signed by the Secretary / Principal Accounting Officer (for federal / federally funded projects and Chairman / ACS (Dev) for provincial projects).
GOVERNMENT OF PAKISTAN
PLANNING COMMISSION
PC-1 FORM
(SOCIAL SECTORS)

1. Name of the Project
2. Location
3. Authority responsible for:
   i. Sponsoring
   ii. Execution
   iii. Operation and maintenance
   iv. Concerned federal ministry
4. Plan Provision
5. Project objectives and its relationship with Sectoral objectives
6. Description, justification and technical parameters
7. Capital cost estimates
8. Annual operating and maintenance cost after completion of the project
9. Demand and supply analysis
10. Financial Plan and mode of financing
11. Project benefits and analysis
    i. Financial
    ii. Social benefits with indicators
    iii. Employment generation (direct and indirect)
    iv. Environmental impact
    v. Impact of delays on project cost and viability
12. (a) Implementation schedule
    (b) Result Based Monitoring (RBM) Indicators.
13. Management structure and manpower requirements including Specialized skills during execution and operational phases
14. Additional projects/decisions required to maximize socio-economic benefits from the proposed project
15. Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Social Sector projects.

Prepared by
Name, Designation & Phone#

Checked by
Name, Designation & Phone#

Approved by
Name, Designation & Phone#
### SPECIMEN OF GANTT / BAR USED IN PROJECT FORMULATION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparatory Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Issuance of Decree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Office Accommodation</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier etc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Appointment of Staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Arrival of Experts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Survey of National System of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Identification and Commencement of Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Assistance in Formulation of Annual Plans</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>5. Assistance in Formulating four-Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Plan (1980-84) and Subsequent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rolling Plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selection of Candidates and Fellowships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Workshops to Train Key Personal</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
</tbody>
</table>

Xxxxxxxxxxxxxxxxxxxx

Xxxxxxxxxxxxxxxxxxxx

Xxxxxxxxxxxxxxxxxxxx

Xxxxxxxxxxxxxxxxxxxx
### ANNEX VIII

**SPECIMEN OF MULTILE ACTIVITY CHART**

**USED IN PROJECT FORMULATION**

**Project** – **Printing the School Guide**

<table>
<thead>
<tr>
<th>FUNCTIONS</th>
<th>Head</th>
<th>Deputy</th>
<th>Asst</th>
<th>Technician</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approve budget</strong></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Call for quotations</strong></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approve lay-out</strong></td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approve text of the guide</strong></td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approve ‘Dummy’</strong></td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Order blocks</strong></td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Read ‘Proofs’</strong></td>
<td></td>
<td>⭐</td>
<td></td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Select colours</strong></td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Give print order</strong></td>
<td>⭐</td>
<td>⭐</td>
<td></td>
<td>⭐</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approve machine ‘proof’</strong></td>
<td>⭐</td>
<td></td>
<td>⭐</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accept printed guides</strong></td>
<td>⭐</td>
<td></td>
<td>⭐</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pay bills</strong></td>
<td>⭐</td>
<td></td>
<td>⭐</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- ☐ Final Decision
- ⭐ Provides general supervision and supervision
- ⭐ Discuss points specifically submitted
- ⭐ Must be informed
- ⴗ Must be consulted
- ☐ Provides direct supervision
- ☉ Performs the work
UNIT 3

PROJECT FORMULATION
AND IMPLEMENTATION

Written by: Razia Abbas
Revised by: Ms. Tahira Bibi
OBJECTIVES OF THE UNIT

After studying this course you will be able to:

1. Differentiate between a programme and a project.

2. Explain what are project cycle and the division and the number of stages of the cycle.

3. Classify different projects in different types.

4. Formulate a project with all its components.
# CONTENTS

<table>
<thead>
<tr>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> The Educational Planning Process .................................................................................. 52</td>
</tr>
<tr>
<td><strong>2.</strong> The Project Cycle ............................................................................................................. 53</td>
</tr>
<tr>
<td>2.1 Sector analysis .................................................................................................................... 54</td>
</tr>
<tr>
<td>2.2 Project Identification ......................................................................................................... 54</td>
</tr>
<tr>
<td>2.3 Preparation of Project ........................................................................................................ 55</td>
</tr>
<tr>
<td>2.4 Appraisal of Project .......................................................................................................... 55</td>
</tr>
<tr>
<td><strong>3.</strong> Types of Educational Project ............................................................................................ 56</td>
</tr>
<tr>
<td><strong>4.</strong> The Components of a Project ............................................................................................ 57</td>
</tr>
<tr>
<td><strong>5.</strong> Case Study: Project Preparation ....................................................................................... 59</td>
</tr>
<tr>
<td>Federal Education Management Information System ................................................................ 59</td>
</tr>
<tr>
<td>5.1 Name of Project .................................................................................................................. 60</td>
</tr>
<tr>
<td>5.2 Authorities Responsible ..................................................................................................... 60</td>
</tr>
<tr>
<td>5.3 Time Required for Completion of Project .......................................................................... 60</td>
</tr>
<tr>
<td>5.4 Plan Provision ..................................................................................................................... 60</td>
</tr>
<tr>
<td>5.5 Relationships of the Project with the objective of the Sector ........................................ 61</td>
</tr>
<tr>
<td>5.6 Capital Cost of Project ....................................................................................................... 61</td>
</tr>
<tr>
<td>5.7 Annual Recurring Expenditure after completion ............................................................... 61</td>
</tr>
<tr>
<td>5.8 Objectives of the Project .................................................................................................... 62</td>
</tr>
<tr>
<td>5.9 Functions of the Project ...................................................................................................... 63</td>
</tr>
<tr>
<td><strong>6.</strong> Project Description and Financing .................................................................................... 65</td>
</tr>
<tr>
<td>6.1 Location of the Project ........................................................................................................ 65</td>
</tr>
<tr>
<td>6.2 Existing Facilities ................................................................................................................ 65</td>
</tr>
<tr>
<td>6.3 Description/Justification of Project .................................................................................... 66</td>
</tr>
</tbody>
</table>
1. THE EDUCATIONAL PLANNING PROCESS

As a matter of fact educational plans are conceived, prepared, carried out and evaluated in different phases. There are six phases and these phases come in the following sequence:

(i) Pre-planning
(ii) Planning
(iii) Plan formulation
(iv) Plan elaboration
(v) Plan implementation
(vi) Plan evaluation

The educational plan gives a direction and general orientation of the development foreseen in education sector. This plan determines the objectives, targets, resources and estimated expenditure set for the overall frame of the plan for the educational activities during the years to come. In most of the countries, including Pakistan, this plan document is not sufficiently detailed to guide the implementation of the plan. After plan formulation phase, objectives have to be specified further; the major activities to achieve these objectives will have to be identified; persons in charge of the administration have to be determined and resources and expenditures involved have to be identified. This is the reason why, during the plan elaboration phase, the educational plan is broken down and divided into blocks of action, consisting of programmes and projects.

An educational project is a set of activities which aims at accomplishing specific objectives within a given period of time and cost in one or more defined geographical areas and among a specific clientele group. A project has its own budget and should, throughout its existence and implementation, be under the same administrative authority or authorities if the project is administered by different sectors. A frequent duration for a project is between 4 and 5 years. Project is a set of activities which aim at accomplishing specific objectives and targets within a given period of time, in one or more defined geographical areas, among a specific group, under the management of one administrative authority and with a specific finding.

Project may consist of one or several components (or sectors), that is, subsets of activities pursuing a common objective. Project components may be classified according to the types of education (level, branch, formal non-formal). These types usually correspond to different administrative units. Thus a project may have primary education and vocational training component. Criteria for classification may vary.

Projects with several components are generally complex to administer. However, in certain cases, it may be advisable to combine several components under one single project administrative unit if components are too small or financed from a single particular source of if project management skills are scarce. The impact of a project may be jeopardized if available project funds are spread too thin over several components.

As compared with programmes – projects have a definite ending point in time. Programmes may or may not end at a particular time, when they do, they have a longer time span than project. Programmes may also financed recurrent cost for a relatively long period of time while projects do not. Programmes also have a wider scope than projects.
carried out simultaneously or one after another. However, the meaning of project as against programme is variable according to the country’s own administrative and financial capacities. A text-book production activity costing millions of rupees can be tackled as a 20 year programme by one country and as a 5 year project by another.

We take an example to illustrate what has been said above. Let us say, in Pakistan, we mount a programme, help to reduce the imbalance in education between different provinces of the country as regards the educational performance of students in primary education. As you can see, this programme has a wider scope and a definite objective. In order to meet the objective of this programme several projects can be identified and formulated. The two most important can be:

(i) Development of in service training programmes for the teachers and supervisors.
(ii) Construction and equipment of a resource centre for these in-service training programmes for the teachers.

These two projects are part of a larger programme which will reduce disparity in educational performance at primary level. This programme will include so many other projects. It has a wider scope and longer time span. Each project mentioned above aims at accomplishing specific objectives and targets. Projects will be mounted for a given period of time under the management of one administrative authority.

**Exercise–I**

1. Name four different aspects of a project and a programme.
2. A programme in one country can be tackled as a project in another country. Explain the statement with the help of an example.
3. In para 1.7 we have give two projects. Write down a project which will meet the objective of the same programme.

2. **THE PROJECT CYCLE**

Project formulation and implementation activities run through several successive stages which are referred to as the “Project Cycle”. The division and the number of stages of the cycle may vary depending on the particular agency or country concerned. The essential stages are:

- Sector analysis
- Project identification
- Project preparation
- Project appraisal
- Project execution and control
- Project evaluation

National agencies desiring to formulate and implement projects need to follow these stages. Moreover, if educational planning is to be effective, the project cycle should be integrated into the planning process.
2.1 Sector Analysis

Main objective of sector analysis is to provide the necessary basis for a systematic identification of educational projects. The problems and policies of the country’s education sector are analyzed for this purpose. A coherent set of action proposal which includes investment priorities and programmes in education are followed.

Good educational plans provide the essentials of the sector analysis required for project purposes. However, some extra complementary sector work would frequently be needed for certain specific projects either to update or reorganize the plan’s information or to develop, in detail, subjects of special concern.

Sector analysis is also carried out by some outside agencies like UNESCO and the World Bank. Their analysis is frequently done through “Sector Studies”. These studies are carried out either by UNESCO missions in consultation with national authorities and officials, or by national official themselves with some external assistance.

2.2 Project Identification

Project identification involves two main operations:

(i) The identification of one or several priority in which projects are required if proposed action objectives are to be fulfilled. In other words “project areas” present “gaps” between desired objectives and available means. The aim of a the project will be to fill in these gaps.

(ii) The preliminary definition of objectives and contents or the components of such projects, their estimated costs and likely sources of finance and the administrative authority in charge of the project will be identified.

The main objectives of identification stage is to provide a basis for decision-making to national authorities like Ministry of Education, Finance and Planning etc, and to the potential external funding agencies. A list of well identified projects is also the first step in formulating an investment programme for the educational plan.

Project identification is usually started as part of an educational plan or a sector study. Such studies frequently have a final chapter giving a programme for investment, or a list of priority project areas but the degree of detail varies from one study to another. In addition, special identification reports are needed to complete the identification. UNESCO and The World Bank do this job by sending “Identification Mission” to the country.

As compared to the preparation of the project, the initial preliminary definition of the project is done relatively rapidly, using crude estimates, available information and preliminary judgment. Inspite of such preliminary character of the work, some “quality criteria” such as the projects financial feasibility, are applied at the identification stage. Once the project has received approval and funding is forthcoming, the preparation work, which is mostly long and laborious, can start, with the understanding that any aspect of the project may be changed as new evidence become available.
2.3 Preparation of Project

This stage covers all the activities necessary to establish extensively and in detail the justification, objectives, components and target population of the project, its technical features from the education and architectural point of view, staff, physical facilities equipment, technical assistance and their requirements. The locations and sites of facilities the projects and cost of project is also set up or designed at this stage.

In principle, project preparation starts once a project has been identified, that is a project idea has been selected as suitable for financing and the project has been defined. The complete list of times to be included in a project proposal is given in section IV.

2.4 Appraisal of Project

The project appraisal refers to a comprehensive and systematic review of a project when it is submitted for financial allocation or assistance, with a view to making a critical assessment of its justification, standards, costs, feasibility etc, and its consistency with the institution’s lending criteria and programme. National planning or foreign funding agencies could also conduct appraisals of projects submitted for approval by national education agencies. When such approval by an outside institution is not required, the formulation of the project would be completed at the preparation stage, during which the application of technical standards and quality criteria should be taken care of.

Following are different kinds of appraisal which are required to make a judgment about the availability of the project:

(a) **Technical Appraisal**: It includes the assessment of all kinds of technical aspects of project and input-outputs relationships. Further appraisal can proceed only if it is found that a project is technically feasible.

(b) **Financial Appraisal**: It includes a detailed analysis of all financial aspects of the project such as sources and kinds of funding, estimation of capital and recurrent cost of the project (based on technical parameters of technical appraisal), and estimation of financial parameters to establish the financial viability of the project.

(c) **Economic/Social Appraisal**: It includes the impact of the project on economy and society at large as against financial analysis which is confined only to the project. Such an analysis requires detailed investigation about all kinds of direct and indirect costs and benefits of project besides using appropriate prices (i.e. shadow prices) relevant to the economy / society.

“You will study the last two stages of a project, which is “project execution and control” and “project evaluation” in another unit in detail and depth. (See Unit-5)

Going back to the larger educational development plan of which any project should be a part, we may now conclude that the project cycle extends through several phases of the plan. In principle, it starts with the “Plan Elaboration Phase” and runs concurrently with the phases of “Plan Implementation” and “Plan Evaluation”. In practice, however, the relationship between project and plan is; not always that clear. The time period covered by the educational project is rather short, usually between three and five years. To fill the gaps of educational plan and create an adequate basis for identification of projects, it is often necessary to undertake special sector survey or analysis. National
project team often participates in sector analyses and project identification. However, their work is usually concentrated in project preparation, execution and evaluation.

**Exercise – 2**

i. Write down first four stages of a project cycle.

ii. Explain the statement “good educational plans: Provide the essentials of the sector analysis required for project formulation.

iii. What is meant by “appraisal of project?”

### 3. TYPES OF EDUCATIONAL PROJECTS

Educational projects can be classified in different ways and several criteria can be applied when putting these projects in types.

Projects can be classified according to their objectives. These objectives can be:

(i) Expanding the education system. This will include:
   (a) Increase in the output of qualified manpower.
   (b) Increase in the opportunities for general education.

   These projects are mainly focused either in the regions which are under developed educationally or aimed at deprived social groups. The objective of quality of education combines the expansion in education system resulting in new projects.

(ii) Improving the quality of education. This will include:
   (a) Increasing the number of qualified teachers.
   (b) Improving the quality of qualified teacher.
   (c) Improvement in the text-book, curriculum content etc.

(iii) Development of planning and management capacities in the field of education. Projects can also be classified according to the type of activities or inputs:
   (a) School construction projects.
   (b) Staff training projects.
   (c) Text-book projects.
   (d) Research projects
   (e) Development of audiovisual aids project

**Activity:** This list is not exhaustive. Think of some other project which can come under this category.

It has been experienced that in the field of education, in order to facilitate the attainment of objectives, both physical and non-physical inputs should be catered for under one single project.

Another way of classifying the projects is “conventional projects” or non-conventional projects”. This means the two types of projects which apply either established or innovative approaches in construction methods materials or educational approaches etc. a project maybe termed as conventional or un-conventional accordingly to the time and situation of a country.
For example a project of in-service training of teachers is a conventional project in Pakistan at present but ten years back it could be classified as unconventional project. Similarly, it will be an unconventional project in a country where only pre-service training of teacher is provided.

4. THE COMPONENTS OF A PROJECT

A project is formulated and analyzed by using a number of essential components. These components are necessary and should be presented in all educational projects.

List of items or components to be included in the preparation of educational projects is given here briefly:

(i) **Justification Whole Project and by Component**
   - Selected background information
   - Problems, needs, courses and constraints
   - Expected benefits
   - Relation to government policies
   - External assistance needs

(ii) **Objectives and Rationale Whole Project and by Component**
   - Statement of objectives
   - Project component’s rationale

(iii) **Selected Features of Institutions and Activities**
   - Organization
   - Output
   - Programme of activities of studies
   - Methods
   - Staff
   - Standards and norms
   - Other as needed, for example location

(iv) **Costs**
   - Capital costs
   - Recurrent costs

(v) **Project Components**

<table>
<thead>
<tr>
<th>Items</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Software</td>
<td></td>
</tr>
<tr>
<td>- Staff training</td>
<td></td>
</tr>
<tr>
<td>- Research</td>
<td></td>
</tr>
<tr>
<td>- Technical assistance / expert service</td>
<td></td>
</tr>
<tr>
<td>- Other</td>
<td></td>
</tr>
</tbody>
</table>
(b) **Hardware**
- Physical facilities
- Equipment
- Furniture
- Material
- Other

(vi) **Project Feasibility**
- Technical aspects
- Commercial aspects (if applicable)
- Financial aspects
- Economic aspects
- Social aspects
- Administrative and organizational aspects
- Implementation schedule
Exercise – 3

Choose one project and write 3 page report

CASE STUDY

FeDEMIS
FEDERAL EDUCATIONAL MANAGEMENT
INFORMATION SYSTEM
PC – I
PART ‘A’
PROJECT DIGEST

5.1 Name of Project: Federal Educational Management Information System (FeDEMIS)

5.2 Authorities Responsible for:
   i. Sponsoring: Ministry of Education
   ii. Execution: Academy of Educational Planning and Management, Ministry of Education, Islamabad.
   iii. Operation and Maintenance: AEPAM

5.3 Time required for completion of Project (in months): 24 months

5.4 a) Plan Provision:
   i. If the Project is included in the current Five Year Plan, specify actual allocation:
   II. If not included in the current Plan, how is it now proposed to become accommodated (inter/intra sectorial adjustments in allocation or other resources may be indicated):
   iii. If the project is proposed to be financed out of block provision for a programme indicate:

<table>
<thead>
<tr>
<th>Total Block Provision</th>
<th>Amount already committed</th>
<th>Amount Proposed for this Project (Rs.000)</th>
<th>Balance Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>b)</td>
<td></td>
<td>12,395.00</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

   The project would be financed under SAP component for education.

   If the Project is not in the plan, what warrants its inclusion in the plan? N.A.
5.5 **Relationship of the project with the objectives of the sector.** Indicate the contribution of the project, quantified if possible to the targets on the Five Year Plan and the names of other projects whether sanctioned or under preparation which would form part of the integrated programme within the sector.

The Federal Educational Management Information system (FedMIS) would act as a catalyst of overall educational development and be directly related to the education sector since all the information would be gathered from the educational institutions at district level from each province. This data would be useful of policy formulation, school allocation designing and technology, personnel management, personnel development, budgeting, project preparation and implementation, and evaluation and monitoring etc. This data will constitute one of the most important components for the monitoring and evaluation of Social Action Programme (SAP).

The Project would serve the objectives of the education sector by:

* Providing technical support for establishment of a strong data-base at district level in each province, gathering quality data with respect to enrolment, teachers, institutions, physical facilities, financial accounting, career planning education project, planning and other necessary information directly related to policy formulation, decision making, monitoring, and evaluation etc.

- Making available a data-base to researchers for policy options, projection and diagnostic purposes and to decision – makers for policy formulation.

- Enabling education administrators to have easy and quick access to information and documentation for efficient administration and effective monitoring.

- Coordinating, overseeing and guiding similar projects which have been established in the four provinces.

- Assisting in collecting, processing and analyzing educational data relating to FCT, FATA, FANA and AJK.

5.6 **Capital Cost of Project:**

<table>
<thead>
<tr>
<th>Local Costs:</th>
<th>12,395.00</th>
<th>Equivalent</th>
<th>US$000 413.47</th>
<th>(Rs. in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Exchange Costs:</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12,395.00</td>
<td>Equivalent</td>
<td>US$413.17</td>
<td>(Rs. in thousands)</td>
</tr>
</tbody>
</table>

5.7 **Annual Recurring expenditure after completion:**

| Local (in thousands): | Rs.3,628.00 |
5.8 **Objectives of the Project preferably in quantitative terms:**

- To assist collect, process and analyze educational data relating to such areas as are left out by the provincial EMIS project i.e. FCT, FATA, FANA and AJK.
- To receive data from the four provinces and, consolidating it with data collected from the federally administered areas, to present a national picture.
- To provide essential leadership and vision for developing an RMIS in Pakistan from conceptualization to realization and implementation to evaluation. As a coordinating and facilitating unit it will ensure the development of a system that satisfies the need for:
  - Compatibility in data design, entry, and processing across different provinces.
  - Compatibility with other data bases.
  - Sufficient flexibility to accommodate the different requirements of the provincial governments.
- To promote and harmonize technical development of the system as a whole to cover such activities a lie beyond data collection / processing / reporting / utilization.
- To promote and facilitate the institutionalization of the system as a whole in the four provinces and FATA, FANA, AJK and FCT.
- To assist the provinces overcome problems in the implementation of similar projects existing at their level.
- To disseminate data in the form of report, statistical profiles, policy analyses and to encourage researches in the country to use data for investigation.
- To consolidate and disseminate data at national level for preparation and reporting of national statistics relating to educator for planning, administration and decision making.
- To assess and determine national and provincial needs for educational planning and management information and to cater for the same. Similar service to be provided to other users, such as international agencies and representatives of other social sectors, as and when requested for.
- In short, the main objective of the project is to develop and institutionalize EMIS in the whole of Pakistan as well as to provide timely, precise and reliable information to planners, researchers, policy makers, administrators, monitors and other data users for enlightened decision making, pragmatic strategic planning, efficient administration and effective monitoring and evaluation.
5.9 **Function of the Project**

- To assist in collecting data from the federally administered areas.
- To consolidate nation-wide data, process and analyze it.
- To offer training to provincial coordinators / field personnel / operational staff / master trainers etc, as and when requested by the provinces.
- In order to achieve the above objective, training courses / workshops will be conducted throughout the country at the request of the provinces to develop skill in the following techniques / processes / activities / software packages.

**Target Group**

1. Questionnaire Designing and Pre-Testing
   - Provincial Coordinators

2. Training of Enumerators / Data collectors
   - District Data Collectors

3. Data Processing / Data Entry Operators
   - AEPAM Staff/district local staff

4. Word Processing Package (WORDPERFECT)
   - FedEMIS staff/District local staff

5. Spreadsheet Database Packages
   - Personnel involved in data analysis

6. Statistical Package for Social Sciences (SPSS) PC+
   - Statisticians involved in educational planning and development

7. Educational Management Information System EMIS
   - Middle level Management at District and Provincial levels

8. Information use in Planning and Management
   - Top level Managers / Planners

- To coordinate national level training for each of the EMIS components: collection, processing, entering / retrieval, query procedures, output, reporting and utilization, as required by each province / federal areas.

- To impart training to and develop technical expertise of, at least 20 personnel of Federal Areas (FATA, FANA, AJK and FCT) in EMIS so that they may be able to carry out their activities independently after the project is completed.
PART ‘B’

6. PROJECT DESCRIPTION AND FINANCING

6.1 Location of Project:
(Attach map)

- Academy of Educational planning and Management of Education, Islamabad

a) Give name of place and administrative district in which the serve centre will be located

- Academy of educational Planning and Management, Ministry of Education, Islamabad, will act as FCU for all the four provinces / federal areas

b) Indicate total area which will be served

- Collection of data FCT, FATA, FANA, AJK
- Consolidation analysis of data whole of Pakistan

6.2 Existing Facilities

Give information about public and private sector institutions in the area, their staff and equipment, actual enrolment in various classes and capacity enrolment of the institution. The information about public and private sector institutions should be given both for the level of the educational programme proposed by the project as well as for the lower level institutions which serve as feeder institutions for the project:

FedEMIS is, in fact an extension of the National Educational Management Information System (NEMIS) which was implemented from July 1991 to June 1993 with financial and technical assistance of UNDP and USAID. That project developed an EMIS at the district level in each province and federal area. Personal Computers (PC) along with necessary staff were inducted at the district level. Data collected was punched into PCs and draft reports were produced during this phase. There were 102 district cells in Pakistan, out of which 80 were made operational and the remaining 22 in Punjab could not become operational due to hiring freeze on the part of Government of Pakistan. The equipment for the 22 districts, though not installed in the concerned district, is none the less being used for data entry and processing in Punjab NEMIS center, Lahore. Similar facilities were also set up at the federal level which still exist. The project was evaluated in May 1993 and it was recommended that the existing project may be continued with new dimensions. Until then, the project was executed by the Central Bureau of Education which was in the meantime wound up. At that stage, the project was transferred to AEPAM which had been executing it in the intervening period between Phase I and Phase II.
6.3 Description / Justification of the Project:

Give brief history, proposed facilities and justification of project:

Pakistan inherited an administrative set up based on orthodox approaches. It was highly centralized in nature as key policy decisions were made and routine decision left to the indigenous civil servants. Unfortunately, very little efforts were made to modernize the administrative system and gear it towards the realization of educational objectives. Poor planning and management services resulted in inefficiency of the system.

Non availability of accurate data at the operational level has resulted in confusions at the lower strata. The situation is worse at the management control and strategic planning level. Absence of any decision support at these levels has made decision making intricate and enigmatic. This has resulted in defective planning and mismanagement of the whole education system. As a consequence, country could not utilize its resources properly. Due to lack of proper data flow, the system suffered from major problems such as “under funding” and “under spending”.

Until a few years ago, with the exception of NWFP, there was not computerized data base available in the country’s education system. In the rest of Pakistan, manual facilities existed which appeared outdated, obsolete, time consuming and also unreliable data and consequently defective planning. A definite need was therefore, felt to improve the data collection mechanism, its reliability, relevance and also prompt availability thus bring it at par with NWFP where a pilot EMIS project was established (1980-83) by Management Unit for Study and Training (MUST) in Peshawar. It computerized educational data and raised an EMIS for the school department. Later, not only the activities of MUST were expanded to cover about 75% of all the schools in the province and also at colleges following the MUST model, NEMIS Project was implemented during 1991-93.

NEMIS was carried out under collaboration with UNDP, USAID and UNESCO Facilities were provided for the establishment of educational management information centers throughout the country at district level. The design of this project was to respond to the needs identified in the plan and in related studies to improve planning of education, to improve the management of education and delivery of instruction, to establish fully computerized system for data coding and consolidation analysis and disseminating, NEMIS was completed in Jun, 1993 and evaluated in May, 1993. The Evaluation Report recommended the extension of the project.

In the meantime, an additional factor has surfaced to warrant FedEMIS. This Central Bureau of Education, which was responsible for taking educational census each year, has been wound up, leaving a big vacuum. This vacuum will be filled by FedEMIS.
FedEMIS is to be launched with assistance from the World Bank as a component of SAP. Initially, it will be launched for two years and after completing its life, will gradually become part of AEPAM’s regular activities. At that stage, AEPAM’s regular budget will have to be increased to take care of the incurring expenditure.

The Academy of Educational Planning and Management will act as Federal Coordinating Unit (FCU) for the consolidation of all data gathered from each province. It will also be responsible for assisting in data collection from Federal Areas, (FATA, FANA, AJK and FCT) in the initial period and ultimately for the development of such capabilities at the local level.

FedEMIS’s contribution to the education sector would be manifold – ranging from coordination and implementation to analysis for strategic decision making in national educational planning and from designing to evaluation. FedEMIS will not only process and analyze data received from various provinces to present a national picture but will also undertake its analysis with a view to highlighting fundamental issues and suggesting their remedies. Based on this data, policy papers and situational reports will also be prepared so as to help the decision makers in taking enlightened and well informed decisions.

b) **Give population of area to be served, age groups and income levels:**
All children going to government schools will be covered. Attempts will be made to include those in registered private institutions also.

c) **Relationship with other programme in the same sector and in other sectors, indicate whether coordination with other sectors has been assured:**
All provinces have an EMIS within the department of education. These provincial EMISs have been funded under UNDP, NEMIS project and USAID, and now IDS. The provincial EMISs will provide monitoring and evaluation for the education component of the SP in respective provinces. FedEMIS will maintain close liaison and coordination with these units through the mechanism of Policy and Technical committees.

d) **The employment prospects of the persons to be trained and terms of the present and future demand:**
The project envisages ample opportunities to provide training facilities to personnel engaged in EMIS activities. There is a provision to refresh and orient personnel trained during NEMIS phase I with other packages and equip them with the latest approaches being used in the world. However, no training is being planned to produce persons for market employment.

e) **Give details of the type of training or education to be imparted. The syllabus and the subject in which emphasize will be placed. Indicate availability of teaching staff:**
A number of training programmes at different levels and locations are envisaged in data collection, data processing analysis, use, etc.
<table>
<thead>
<tr>
<th><strong>PROFORMA FOR DEVELOPMENT PROJECTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SURVEY AND FEASIBILITY STUDIES</strong></td>
</tr>
</tbody>
</table>

68
GOVERNMENT OF PAKISTAN
PLANNING COMMISSION

PC-II FORM

PROFORMA FOR DEVELOPMENT PROJECTS
(SURVEY AND FEASIBILITY STUDIES)

1) Name by which survey / feasibility will be identified

2) Administrative authorities responsible for
   i) Sponsoring
   ii) Execution

3) Details of survey/feasibility study
   i) General description and justification
   ii) Implementation period
   iii) Year wise estimated cost
   iv) Manpower requirements
   v) Financial plan

4) Expected outcome of the survey feasibility study and details of projects likely to be submitted after the survey.

Prepared by _________________________
Name, Designation & Phone #

Checked by _________________________
Name, Designation & Phone #

Approved by _________________________
Name, Designation & Phone #
Instructions to fill in PC-II Proforma

1. Name of the Project
   Please indicate the name by which survey/feasibility study will be undertaken.

2. Administrative authority
   Indicate name of the agency responsible for sponsoring and execution of the project.

3. Details of survey/feasibility study
   - Provide a general description of the aims, objectives and coverage of the survey/feasibility study.
   - Provide justification for undertaking the survey/feasibility study. Indicate whether previous studies in the field have been undertaken. If so, provide details.
   - Indicate duration of study and proposed months of commencement and completion of the study.
   - Provide item-wise/year-wise capital cost estimate of the study broken down between local and foreign exchange.
   - Indicate date on which cost estimates were prepared and the basis of these estimate.
   - Sources of financing the capital cost be provided.
   - Indicate requirements separately for local and foreign personnel i.e. professional, technical, administrative, clerical, skilled, unskilled, others alongwith their terms of reference.
   - Indicate the period of contract of both the local and foreign consultants alongwith qualifications, experience and the terms of their appointment.

4. Expected outcome
   - Indicate the expected outcome of the survey/feasibility study in quantifiable terms. It may also be indicated whether any project will be prepared after the survey.
PROJECT APPRAISAL

Written by: Dr. S. M. Aijaz
Reviewed by: Ms. Tahira Bibi
OBJECTIVES OF THE UNIT

After having intensively gone through this unit, you should be able to:

1. Know and discuss orally as well as in writing the concept, need, functions and components of project appraisal.

2. Appreciate and appraise in writing what is a project and what are the computational techniques.

3. Discuss and review in writing the various aspects of project appraisal.

4. Appraise and find out the various strong and weak points of educational projects.

5. Solve and compute various problems such as given at the end of the unit.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Need for Project Appraisal</td>
<td>74</td>
</tr>
<tr>
<td>1.1 Balanced Development</td>
<td>75</td>
</tr>
<tr>
<td>1.2 Sectoral Interdependence</td>
<td>75</td>
</tr>
<tr>
<td>1.3 Competing Sectoral Demands</td>
<td>77</td>
</tr>
<tr>
<td>1.4 Function of Project Appraisal</td>
<td>77</td>
</tr>
<tr>
<td>2. Project and its Components</td>
<td>81</td>
</tr>
<tr>
<td>2.1 Concept of a Project</td>
<td>81</td>
</tr>
<tr>
<td>2.2 Components of a Project</td>
<td>82</td>
</tr>
<tr>
<td>3. Basic Concepts and Computations Techniques of Project Appraisal</td>
<td>87</td>
</tr>
<tr>
<td>3.1 Basic Concept</td>
<td>87</td>
</tr>
<tr>
<td>3.2 Time Value of Money</td>
<td>87</td>
</tr>
<tr>
<td>3.3 Present Worth of Investments / Benefits</td>
<td>88</td>
</tr>
<tr>
<td>3.4 Appraisal</td>
<td>91</td>
</tr>
<tr>
<td>4. Key Issues in Appraising Project</td>
<td>95</td>
</tr>
<tr>
<td>4.1 Need, Targeting and Objectives</td>
<td>95</td>
</tr>
<tr>
<td>4.2 Context and Connections</td>
<td>96</td>
</tr>
<tr>
<td>4.3 Consultation</td>
<td>96</td>
</tr>
<tr>
<td>4.4 Options</td>
<td>96</td>
</tr>
<tr>
<td>4.5 Inputs</td>
<td>96</td>
</tr>
<tr>
<td>4.6 Outputs and Outcomes</td>
<td>96</td>
</tr>
<tr>
<td>4.7 Value for Money</td>
<td>96</td>
</tr>
<tr>
<td>4.8 Implementation</td>
<td>96</td>
</tr>
<tr>
<td>4.9 Risk and Uncertainty</td>
<td>97</td>
</tr>
<tr>
<td>4.10 Forward Strategies</td>
<td>97</td>
</tr>
<tr>
<td>4.11 Sustainability</td>
<td>97</td>
</tr>
<tr>
<td>4.12 Checklist for Project Appraisal</td>
<td>97</td>
</tr>
</tbody>
</table>
5. Aspects of Project Appraisal
   5.1 The Technical Aspect
   5.2 The Economic Aspect
   5.3 The Commercial Aspect
   5.4 The Financial Aspect
   5.5 The Managerial Aspect
   5.6 The Organizational Aspect
   5.7 Environmental Analysis
   5.8 Social Analysis
   5.9 Cross Cutting Analysis

6. Appraisal of Educational Projects

7. Self-Assessment Questions
INTRODUCTION

Project appraisal is the process of assessing and questioning proposals before resources are committed. It is an essential tool for effective action in community renewal. The objective of it is that the partnerships, approving authorities and different stakeholders can choose the best projects to help them achieve what they want for their community.

Appraisal has been a source of confusion and difficulty for projects in the past. Audits of the operation of Single Project Budget schemes have highlighted concerns about the design and operation of project appraisal systems, including:

1. Mechanistic, inflexible systems
2. A lack of independence and objectivity
3. A lack of clear definition of the stages of appraisal and of responsibility for these stages
4. A lack of documentary evidence after carrying out the appraisal

It’s no surprise that audits or inspections aren’t impressed with the quality of appraisals, and are specifically found with problems like:

1. Individual appraisals which do not cover the necessary information or provide only a superficial analysis of the project
2. Particular problems in dealing with risks, options and value for money
3. Appraisals which are considered too onerous/burdensome for smaller projects
4. Rushed appraisals

Project appraisal is a requirement before funding of programs is done. But tackling problems like those outlined above is about more than getting the systems right on paper. Experience in projects emphasizes the importance of developing an ‘appraisal culture’ which involves developing the right system for local circumstances and ensuring that everyone involved recognizes the value of project appraisal and has the knowledge and skills necessary to play their part in it.

1. NEED FOR PROJECT APPRAISAL

Project appraisal helps project initiators and designers to;

1. Be consistent and objective in choosing projects
2. Make sure their program benefits all sections of the community, including those from ethnic groups who have been left out in the past.
3. Provide documentation to meet financial and audit requirements and to explain decisions to local people.

1.1 Balanced Development

Governments face many problems; on the other hand, they have got less resources; and on the other hand a number of economic as well as social objectives have to be achieved. If the basic needs of the ever increasing population are to be met, agricultural output must be increased, the coverage of health facilities has to be enlarged, the availability of clean drinking water has to be ensured, the production of manufactured goods has to be increased and facilities for sale and quick transportation of men and material have to be provided. New educational institutions of all types need to be established not only to provide basic education but also to ensure availability of trained manpower for all the above activities, and so on.
1.2 Sectoral Interdependence

The development objectives of each of the sector of the economy have to be realized if the standard of life of the people has to be improved. The attainment of the development targets of any one sector is linked up with development in a number of other, if not all sectors. Thus, for increasing agricultural outputs – availability of water, seed, fertilizers, pesticides etc – has to be ensured (water sector, industry sector). For mechanization of agricultural, tractors have to be made available (industry sector). Moreover, credit facilities have to be made available in time for the purchase of these inputs, and know-how has to be passed and trained manpower has to be made available (education and manpower sectors). The economy is like the human organism for whose efficient functioning each and every organ must operate at its optimal level. It must now be obvious that all sectors of the economy must be developed in a coordinated fashion.

Proper implementation of project in any sector is both depended upon and has important impact upon developments in other sectors. A number of projects in different sectors are listed in Table 1. Please indicate in appropriate columns of the table how the implementation of each is related to developments in other sectors.

ACTIVITY – 1

TABLE – 1

INDICATE HOW THE IMPLEMENTATION OF EACH PROJECT IS RELATED TO DEVELOPMENTS IN A NUMBER OF OTHER SECTORS

<table>
<thead>
<tr>
<th>SECTORS</th>
<th>Agriculture</th>
<th>Education</th>
<th>Energy</th>
<th>Health</th>
<th>Industry</th>
<th>Manpower</th>
<th>Physical Planning</th>
<th>Population</th>
<th>Transportation &amp; Communications</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction of Kalabagh Dam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Transmission Line from Tarbela to Karachi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer Plant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational Training Centre, Hub Chowki</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Cost Houses at Karachi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of Nurses and paramedical staff at Karachi, Lahore and Peshawar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning and lining of water courses in Punjab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establishment of a College at Noshi in Baluchistan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.3 Competing Sectoral Demands
Each sector of the economy needs resources, and resources are scarce. Just to illustrate the pinpoint, demands for resources received in the Planning commission for the Annual Development Programme.
Under-development is because of shortage and improper, inefficient use of resources. If scarce resources are to be allocated (logical, systematic) methods has to be used to convert costs and benefits of projects in different sectors and in different sub-sectors of the same sector into a common, comparable unit.
The resources required for development are money, material and men.

1.4 Appraisal Justifies Spending Money on a Project
Appraisal asks fundamental questions about whether funding is required and whether a project offers good value for money. It can give confidence that public money is being put to good use, and help identify other funding to support a project. Getting it right may help a community make its resources go further in meeting local need

Appraisal is an Important Decision Making Tool
Appraisal involves the comprehensive analysis of a wide range of data, judgments and assumptions, all of which need adequate evidence. This helps ensure that projects selected for funding:
1. Will help a partnership achieve its objectives for its area
2. Are deliverable
3. Involve local people and take proper account of the needs of people from ethnic minorities and other minority groups
4. Are sustainable
5. Have sensible ways of managing risk.

Appraisal Lays the Foundations for Delivery
Appraisal helps ensure that projects will be properly managed, by ensuring appropriate financial and monitoring systems are in place, that there are contingency plans to deal with risks and setting milestones against which progress can be judged.

Getting the System Right
The process of project development, appraisal and delivery is complex and partnerships need systems, which suit local circumstances and organization. Good appraisal systems should ensure that:
Project application, appraisal and approval functions are separate.

All the necessary information is gathered for appraisal, often as part of project development in which projects will need support.
1. Race/tribal equality and other equality issues are given proper consideration.
2. Those involved in appraisal have appropriate information and training and make appropriate use of technical and other expertise.
3. There are realistic allowances for time involved in project development and appraisal.
4. Decisions are within a implementers’ powers.
5. There are appropriate arrangements for very small projects.
6. There are appropriate arrangements for dealing with novel, contentious or particularly risky projects.

Function of Project Appraisal

*Project and Important Aspects of Project*

The successful implementation of different kinds of projects is the principle way to accumulate capital assets that produce benefits over an extended period of time. Since in such an activity resources are used in expectation of adequate in future, it logically lends itself to proper planning, financing and implementation. A project, therefore, necessarily, needs a minimum level of investment which could be analysed independent of any other project. In other words if two or more projects cannot produce the expected returns independent of one another then all of them have to be treated as one project. In addition, for a meaningful analysis, the project should have a definite starting and finish point.

A project has most often multidimensional effect. These effects need to be carefully examined and linked with the specific objectives planned to be achieved through investment process. Different aspects of a project could be classified as following:

- Technical aspects.
- Institutional and organizational aspects.
- Commercial aspects.
- Financial aspects.
- Economic aspects.
- Social aspects.

The technical aspects concerns the project inputs and outputs. It is extremely important that before a project is physically implemented the technological requirements are determined to the utmost details. The task of the technical design is critical function in the ultimate success of the project. In fact the other aspects can proceed in a satisfactory way only when technical details are available, although the technical assumptions of the project may be revised as the other aspects are examined in detail.

The institutional, organizational and managerial aspects are the most important aspects of the successful implementation of the project and the issues such as detailed below should be resolved in advance:

(a) Whether the project suitably fits in the socio-cultural patterns and institutions where the project is implemented?
(b) Does the project incorporate the exiting institutions and use them to further project?
(c) How the administrative organization of the project relates to the existing agencies?
(d) Is there to be a separate project authority etc?
The managerial issued are crucial for the success of the project. In fact there is no substitute for good management. Most often good management could make a poor project a success and vice versa. It is, therefore, essential that the ability and technical know-how of the available staff is examined and fair judgment is made whether they can administer the project. If managerial skills are limited, provision for training and / or hiring of expatriates should be decided in advance.

Commercial aspects of a project are related to the marketing of the output produced by the project. Careful analysis of demand, identification of potential markets, the mechanism of marketing etc, are essential for success of the commercial projects.

Financial, economic and social aspects are crucial in the ultimate decision makings that whether a project should be undertaken. The financial aspects of the project preparation and analysis include the financial effects on various participants such as government, private firms, public corporations, project agencies etc. in fact financial criteria is one of the most important criteria in investment decision making. Private investors and commercial organizations always make decision on the basis of financial profitability of their investment.

The economic aspects are quite closely related to the financial aspects. But in the economic analysis, contrary to the financial analysis, an assessment is made to determine the extent of contribution of the project to the economy as a whole.

The emphasis on social aspects of projects, (such as employment, distribution of income received attention in the post seventies era because the macro economic development strategies of 1950s and 1960s failed to raise the standard of living of millions of people despite substantial increase in gross national product of many developing countries. The literature in this field expanded rapidly in a short span of period. Under the influence of this literature, social aspects are implicitly or explicitly given consideration in most of the projects.

Important Steps in Project Appraisal

Keeping in view various aspects, described above, project appraisal is a practical way of assessment of viability of a project which involves the identification and measurement of all relevant costs and benefits over the productive life of a project. Following are the four important steps in project appraisal:

(a) Identification of costs and benefits.
(b) Measured of costs and benefits.
(c) The effect of time in investment appraisal.
(d) Presentation of results

Identification of Costs and Benefits

The first task in project appraisal is to identify all the costs and benefits of the project. There are many ways to group costs, but a common way is to distinguish between capital cost and recurrent cost, which are further broken down to show local and foreign exchange components. Similarly, the benefits, which are precisely in terms of incremental output and services, are identified as a difference of “with” and “without” project (non “before” and “after” project). It means the effects of the project should be
assessed giving full consideration to those changes which would have taken place even if the project would not have been implemented. Under such a situation following are the five different possibilities of effects of a project:

(i) The situation in which all the benefits and costs are only because of the project e.g. cost of a new factory and its output.
(ii) The project might have certain constant benefits which are already in the project area e.g. increase in agricultural production because of a new road by linking the area with markets.
(iii) The project will help to sustain the existing level which might decline in absence of the project e.g. a scheme to prevent the erosion of land / road etc.
(iv) The project is not only to sustain the existing level of benefits (as in case of (iii) above) but also further improve, such as improvement of a poorly maintained road, salinity and water logging projects etc.
(v) The project is going to accelerate the pace of rising benefits which already exists. For example if agriculture productivity is already increasing in a certain area, construction of a new road or introduction of a new agriculture technique / seeds will further increase this pace for a certain period.

The effects of a project, in terms of costs and benefits, are also classified as:

(a) Direct - Indirect
(b) Tangible - Intangible
(c) Primary - Secondary

This classification is of special significance for the kind of analysis attempted. The quantitative assessment is mostly possible for the tangible costs and benefits yet the intangible effects are equally important and have to fully described and taken into account in decision makings. Even if not included in the conventional quantitative cost-benefit analysis.

**Measurement of Costs and Benefits**

The terms, costs and benefits have relevance only in relation to certain objectives (e.g. financial, economic, social) and these are measure using prices which are only relevant to these objectives. For the purpose of financial analysis all the costs and benefits are measured at market prices and decision made on the basis of financial profitability of the project. A project is accepted if its financial benefits exceed from the costs of the project. The financial analysis, however, has the following limitations:

(i) There are external costs and benefits, relating to an investment activity, which do not enter into financial transaction though they have important implications for the society at large e.g. education projects.
(ii) In the commercial / financial profitability, inputs and outputs are valued on the basis of market prices, which might not reflect the true scarcity value to the economy. A perfect market, in which market prices also reflect the true scarcity value of goods and service, hardly exists in the real world. The markets of the developing countries, like Pakistan are particularly distorted because of inflation, currency overvaluation, prevailing wage rate and unemployment imperfect capital markets, import quotas, tariffs, expert disincentive etc.
A society may pursue such objectives for which commercial / financial profitability is not a relevant criterion.

To sum up, while commercial / financial profitability, as a criterion for investment decisions, is relevant for a private entrepreneur or entity, it generally fails to allocate the resources in the interest of society at large and economic and social benefits-costs analysis provide alternative to the investment decision making criterion.

**Effect of Time and Presentation of Resists**

There are different ways to present the summary results of project analysis for decision making. In view of significant effect of time in investment appraisal, the Discounted Cast Flow (DCF) analysis provides the most appropriate tools for analyzing the costs and benefits. Besides, it also takes into account the other important aspects of the project and presents the worth of the project in very clear terms. The results of DCF analysis could be presented in several ways, for example, Benefits Cost Ratio (BCR), Net Present Worth / Value (NPW / V) and Internal Rate of Returns (IRR).

2. **PROJECT AND ITS COMPONENTS**

2.1 **Concept of a Project**

A project consists of a set of activities designed to achieve certain objectives. In a broader sense, projects can relate to any human activity. A school may formulate a project for the selection of its hockey team. For this purpose it may organize a series of matches between different classes, constitute a team of judges, prepare rating scale, hold post-match meetings of judges, shortlist potential team members, organize training camps, arrange matches with outside team to try different combinations of player or to try same player at different places and finally put together the best possible team. The formulation of a project is an indication of dissatisfaction with the existing situation and a realization of the need for intervention, in some form, to attain a more satisfactory state of affairs.

The formulation of a project for the selection of the school hockey team is an indication of dissatisfaction either with the school team or the manner of its selection. The taking up of the project also signifies the confidence of the school in being able to field a better school team with the proposed method of selection.

The formulation of a project for the setting up of a printing press at each of the four Provincial Textbook Boards was indicative of the dissatisfaction with the poor quality of printing of textbooks and non-availability of the textbooks at the beginning of the academic year. It also indicated the confidence of project planners that the proposed intervention (installation of printing presses) would remedy the situation.

In the context of national economic planning, a project may be looked upon in two distinct, though related ways. A project may be defined as set of related activities designed to further the development objective. Any activity which results in growth of the capital stock of goods or human resources is development in nature. A project must in some way contribute to an improvement in the quality of life of the people.
A project may also be looked upon as “a proposal for an investment to create, expand or develop certain facilities in order to increase production of goods and / services in a community during a certain period of time”. Any set of activities undertaken to improve the quality of life of a community is bound to involve investment of resources: material, human or both. Similarly, an investment proposal to create or expand facilities would consist of a series of related activities.


### 2.2 Components of a Project

A project, as conceived above, must have the following components:

(I) **Purpose and Objective**: Every proposal must include a statement of purpose and objectives. This must emerge from an analysis of the current situation identifying the deficiencies and problems. Thus every project contains, either implicitly or explicitly, an analysis of the existing situation highlighting the deficiencies and identifying the factors contributing to the deficiencies about which the sponsors are concerned the purpose of the project would thus be to initiate action(s) which is (are) deemed to effectively counteract the factors responsible for the deficiencies. Every project must justify the proposed intervention by an analysis of the situation. For example, a scheme for the construction of teacher residence for intermediate colleges must be formulated on the basis of difficulties experienced in recruiting and retaining college teachers at certain far-flung areas. The difficulty must be analysed in terms of overall availability of qualified teachers in the country and their unwillingness to accept appointment or frequent turnover of teachers at colleges which do not provide residential accommodations.

Sometimes the purpose of the project may be simply to meet the demand for goods / services which may be in short supply. For example, a project was formulated by the Ministry of Education in 1973 to develop the Central Government College for Women at Islamabad to provide degree level education. An intermediate college for girls had started functioning in Islamabad in 1967 and there was no facility for degree level education for girl’s from that college.

A finer distinction may be made between the immediate purpose and the long-term objective of a project. Take for example the project formulated by the Ministry of Education in 1973 for local production of foreign textbooks. It was stated in the project that most of the books prescribed in universities and professional colleges were of foreign origin and were as expensive as to inaccessible to most of the students. The immediate purpose of the project was to provide for printing of foreign textbooks locally so as to make these available to students at a reasonable price and save foreign exchange. It was maintained that the project would help in raising the standard of education. Thus the long-term objective of the project was to bring about improvement in the quality of higher education through overcoming one of the perceived factors responsible for poor quality of out-put of higher education, namely non-accessibility of foreign textbooks to students due to exorbitant cost.

It should be noted that the purpose and objective of the project emerge from sector analysis. The dissatisfaction with the existing state of affairs is obvious and the factor responsible is implied.
Proposed Intervention. On the basis of sector analysis and identification of deficiencies the project proposal advisers to initiate certain actions to correct the situation. The proposed intervention is the core of the project. After making an analysis of the extremely limited capacity of educational institutions to meet the ever increasing demand for learning and the high cost of establishing educational institutions, the Ministry of Education concluded that the formal system one cannot meet the need and demand for education for the growing population. The analysis indicated that the formal system is unable even to provide universal primary education. The coverage of the formal system is even less at the secondary and higher levels. A further aspect of the inadequacy of the formal education system is its inability to reach out people in the rural areas where the majority of the population lives. On the basis of such sectoral analysis, the Ministry of Education arrived at the conclusion that the educational needs and demands of a larger segment of the country can be met only by developing non formal system of education which will make extensive use of the distance teaching technique to reach out larger number of person at a relatively lower cost. For this purpose the project provided for the establishment of Allama Iqbal Open University. The proposed intervention in this case was the setting up of the University to provide educational services through distance teaching methods particularly for those who can afford to devote only part of their time for education and even that at their residence or close to their residence.

In 1973, the Ministry of Education formulated five projects for the establishment of centers of excellence at the universities located in Lahore, Hyderabad, Peshawar, Quetta and Karachi in five different scientific disciplines. The project sought to establish these centers to provide teaching and training leading to M.Phil and Ph.D degrees; engage in goal-orientated high-level teaching and research and train research workers; promote cooperation in interdisciplinary relationship with other teaching and research establishment; and arrange conferences, seminars, refresher courses etc. for the development of teaching and research.

The need for this intervention was identified on the basis of an analysis of the deficiencies in the system of higher education which indicated that the country was completely dependent on foreign countries for training of its experts and specialists. As the per student cost of foreign training was exorbitant, involving expenditure in foreign exchange, and as complete dependence on foreign countries for supply of high level manpower was not desirable the Government proposed to intervene by setting up these centers of excellence.

A project proposed must present an analysis of the concerned sector / sub-sector. Whether stated explicitly or not, the project must follow from this analysis / perception of the situation. Every project must indicate clearly the interventions / activities proposed.

The project document should also indicate other alternative approaches, if any for the realization of project objectives. The results of this comparative evaluation of alternative intervention should be furnished to fully justify the choice. The purpose of this exercise is to establish that the proposed intervention is possibly:

(a) The only way of achieving the purpose.
(b) The most effective way of achieving the purpose.
(c) The most economical way of achieving the objective.
(d) The only effective / economical way of achieving the objective.
It must be remembered that the criterion of the effectiveness might be the time required of achieving the target, higher output the quality of output, output per unit of time, etc. to satisfy this condition the project document should give full information about the various alternative form which the proposed intervention has been selected.

The project for establishment of an intermediate college in a locality should, for example, consider the following possible alternatives:

(i) Open intermediate section in the existing high school.
(ii) Provide scholarship to students passing the secondary school certificate examination with a minimum aggregate marks for study in colleges with under-utilized facilities.
(iii) Create additional hostel and / or other physical facilities at the nearest college and provide scholarship to students obtaining minimum aggregate marks.
(iv) The project document must indicate what administrative arrangement(s) are proposed to meet the special needs of the project both at the implementation and at the operational stage. For this purpose the administrative needs at these two stages must be assessed and the arrangements to meet must be spelled out. If the project is to be implemented / executed by an existing organization, the project must indicate that the existing administrative set-up has un-utilized manpower required for the project, or alternatively what additional staff would be required. If the project sponsored by one organization is to be implemented by another organization, the willingness of that organization to assume the responsibility must be indicated. A neglect of seemingly minor and unimportant details can at times have serious implications. An example is the project for the establishment of the Baluchistan Engineering College at Khuzdar proposed by the Federal Ministry of Education. The project was to be executed by a Project Director to be appointed by the Provincial Government. The Provincial Government was unable to find a suitable, experienced engineer willing to take up the job. The project ran into difficulties as project directors came and left.

The assumption that existing administrative machinery would be able to take on the responsibilities of implementation of additional projects does not always hold good. Experience has shown that the practice of having a separate project directorate, particularly for large project, yield better results. A case in point is the establishment of a Federal Implementation Unit and Provincial Implementation Unit for the World Bank supported Third Education project. The administrative structure as well as its costs were built in the project which facilitated both the creation of the machinery and the implementation of the project. Another example is that of the creation of a hierarchy of bodies for opening mosque schools on a large scale during 1982-83. A policy making National Coordination Group was established under the chairmanship of the Minister of Planning and Development. Group was established under the chairmanship of the Minster of Planning and Development. For implementation of the decisions of this Group, Federal and Provincial Coordination Councils were established under Federal and Provincial Secretaries of Education, respectively and at the grass roots level, district
Implementation Committees. Under a decision of the National Coordination Group each concerned Ministry/Department designated one of its officers for this purpose. Thus, an administrative machinery charged with the responsibility for the project was brought into being without additional cost.

(v) **Project Cost.** The project cost must be worked out in details. Normally the basis of cost estimates must be given. For proper costing of the project, it is necessary to work to the details of all activities. Most of the education projects have the following cost components;

(a) **Building**
The Project must provide details of various categories of buildings proposed to be constructed. Full justification for various facilities and the space standards used must be furnished. The project must relate building facilities to academic programmes and student intake. The creation of facilities which are to be used very sparingly has to be avoided. The use of collapsible partitions and removable furniture allowed for multiple use of building facilities. The cost of buildings must then be worked

(b) **Equipment and Furniture**
Quantities of various items of equipment and furniture required for various purpose and building facilities should be worked out and coasted. These should also be related to the academic programmes and proposed intake.

(c) **Library Books**
The cost of journals and other requirements in the form of books and literature should be estimated carefully.

(d) **Development of course / Instructional Material**
In some educational projects courses have to be developed and special instructional materials have to be prepared, used with experimental groups and printed after revision. The cost of these activities should be worked out on the basis of number of courses to be developed and size of the groups for which these materials are being developed.

(e) **Staff Development**
In some projects, provision has to be made for the training of teachers / researchers. The costing must be base the type and education of training, and per man-month cost involved.

(f) **Staff Salary**
Provision has occasionally to be made for staff salaries to be paid out of project funds. This is permissible during the implementation stage (a) in respect of staff required for implementation, and(b) in respect of staff required for research / programme development. Once the project has been executed all staff has to be paid from the revenue budget.
(vi) **Project Outcome**
Once the inputs in the form of men and material are used to implement a project, the results would begin to appear. In most cases (not always in education sector), these results would be in form of material or services of considerable monetary worth. For example, on the completion of the Pakistan steel Mill project, it would produce steel of various grades which would be sold in local or foreign markets. Again, on the completion of a project for laying pipeline between Sui to Quetta a certain amount of gas would be supplied to domestic and commercial consumers in Quetta which would yield some income. A project must spell out in quantitative terms the outcome to be expected on completion of the project. Wherever possible the monetary value of outcome should be worked out. This would enable the decision maker to weight project cost with outcome of the project in order to decide whether it would be worthwhile to make investment.

In respect of most of the projects in social sector, it may be possible to assign monetary value to the outcomes of the project. For example, the outcome of a project for the improvement of science education in high schools would be better understanding of science among students. No money value can be assigned to this outcome. However, in a few case sit may be possible to monetize the outcome of an educational project. For example, a project for the installation of printing presses at the textbook Boards shall have outcome of considerable monetary value.

In any case every project must list the outcome in quantitative terms whether money value can be put to the outcome or not.

(vii) **Schedule of work**
The project must indicate the likely starting and completion dates, the estimated time required for different activities and the annual phasing of the work. If proper attention is given to these details at project preparation stage, the implementation of the project would proceed according to schedule. Moreover, such awkward situations would be avoided when costly equipment arrives before the buildings are ready. Moreover proper financial management is possible only when activities are started according to the planned schedule.

(viii) **Financing Phasing**
Closely related to the schedule of work is the schedule of investment. The annual financial phasing should be based on the activities to be undertaken during each year:
A project must be the following:
(i) Purpose and objective.
(ii) Proposed intervention.
(iii) Adequacy and feasibility of proposed intervention.
(iv) Administrative structure and implementation machines.
(v) Break up of project cost.
(vi) Project outcomes in quantitative terms (with money value, if possible).
(vii) Schedule of work
(viii) Financing phasing.
3. BASIC CONCEPTS AND COMPUTATIONAL TECHNIQUES OF PROJECT APPRAISAL

3.1 Basic Concept

The basic purpose of project appraisal is to assist the decision makers in making the investment decision. The primary consideration in an investment decision is the likely “rate of return on investment”.

The basic techniques of project appraisal is to determine the rate of return of the project and to compare it with the prevalent rate of return on other projects.

For the purpose of determining the rate of return of a project, the present worth of investment to be made in different years during the life of the project is computed and compared with the present worth of the streams of benefits expected over the life of the project.

3.2 Time Value of Money

To understand the underlying philosophy of project appraisal it is necessary to have a clear idea of the time value of money and its implication. An amount of money today (year zero or Yo) is more valuable than the same amount of money after a year from now (year one or Y1), after two years from now (Y2), and so on. This is so because to postpone immediate enjoyment of pleasure and invest his money, one would be willing to do so only in the expectation of more pleasure on a future date.

Compounding and Discounting

What a certain amount of money today (Y0) would become on a future date (Y1, Y2,…Yn) involves compounding. Ascertaining how much an amount of money at a future date (Yn) is worth today.

(a) Compounding

According to the principle of compounding Rs.100 in Yo would be equal to Rs.100 x X at any future time. The value of X would depend upon (i) the stipulated rate of interest, and (ii) the number of years. The compounded value is what the given amount would become if left in a bank at compound interest for that number of years.

How much an initial amount becomes at a future date can be calculated by multiplying the initial amount by the compounding factor read from the Compounding and Discounting tables corresponding to the rate of interest and the number of years.

For example the compounded value of Rs.25,000/- at 12% would be Rs.39,337.98 (25,000 x 1.573519). Please see the four pages from the World Bank Compounding and discounting Tables reproduced in Annex-II.

(b) Discounting

According to the process of discounting Rs.100 at a future date is equal to Rs.100 x today. The value of X would depend upon (i) the rate of interest, and (ii) the number of years.
How much an amount of money at a future date is worth today is calculated by multiplying the amount by the discount factor corresponding to the rate of interest and number of years in Compounding and discounting tables.

Thus Rs.15,725 in Y6 is worth Rs.8876.35 in Yo at the discount rate of 10% as per calculation below:

\[
\text{Discounted wroth of Rs.15,725} = 15,725 \times \text{discount factor} \\
= 15,725 \times 564474 \\
= 8876.35
\]

The compounding factor for a certain rate of interest and for a certain number of years is the reciprocal of the corresponding discount factor.

The compounding factor at 12% for 8 years:

\[
\text{Discount factor at 12\% for 8 years} = \frac{1}{1.403883} = 0.7097
\]

3.3 Present Worth of Investment / Benefits

Two different types of situations involving discounting process arise frequently in appraising a project. Either the amount of investment / benefit varies from year to year or the same amount of investment / benefit occurs for a number of years. The process of working out the present worth of costs / benefit in the two cases is slightly different though the underlying rationale is the same.

(a) Varying Amounts of Investment / Benefit

The present worth of money to be invested at different period of time in a project is not obtained by simply adding up these values but by discounting the investments to be made Y0, Y1, Y2...Yn etc and brining the value of each to Y0. The sum total of the discounted values of these investments is the present value of the project cost for purpose of project appraisal.

For example, take the following investment schedule of a project.

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1986</th>
<th>1987</th>
<th>1988</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y0</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td>Y0 to Y3</td>
</tr>
<tr>
<td>Y1</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2</td>
<td></td>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y3</td>
<td></td>
<td></td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
<td>500 (IN MILLION)</td>
</tr>
</tbody>
</table>
The discounted present value of project cost at 14 percent is Rs.401.32 million worked out in the following manner:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount of investment</th>
<th>Discount factor at 14%</th>
<th>Rs in million worth in Y0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y0</td>
<td>75</td>
<td>1,000</td>
<td>75.00</td>
</tr>
<tr>
<td>Y1</td>
<td>125</td>
<td>0.877193</td>
<td>109.65</td>
</tr>
<tr>
<td>Y2</td>
<td>150</td>
<td>0.769468</td>
<td>115.42</td>
</tr>
<tr>
<td>Y3</td>
<td>150</td>
<td>0.674972</td>
<td>101.25</td>
</tr>
</tbody>
</table>

(b) **Constant Amounts of Investment / Benefit**

The present worth of constant amounts invested annually is also not equal to the sum total of all investment. Instead of discounting the amount year by year and adding up (as explained above) reference is made to the present worth of an annuity factor in the discounting table. For example, present value of a project in which Rs.5 million are invested annually for in years is derived below by both the methods:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
<th>Discount factor Y0 at 14%</th>
<th>Method-I</th>
<th>Method-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>5</td>
<td>.877193</td>
<td>4.39</td>
<td></td>
</tr>
<tr>
<td>Y2</td>
<td>5</td>
<td>.769468</td>
<td>3.85</td>
<td>Present worth of an annuity = 4.946 x 5 million.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Factor (14%) =Rs.24.73 million</td>
</tr>
<tr>
<td>Y3</td>
<td>5</td>
<td>.674792</td>
<td>3.37</td>
<td></td>
</tr>
<tr>
<td>Y4</td>
<td>5</td>
<td>.592080</td>
<td>2.96</td>
<td></td>
</tr>
<tr>
<td>Y5</td>
<td>5</td>
<td>.519369</td>
<td>2.60</td>
<td></td>
</tr>
<tr>
<td>Y6</td>
<td>5</td>
<td>.455587</td>
<td>2.28</td>
<td></td>
</tr>
<tr>
<td>Y7</td>
<td>5</td>
<td>.399637</td>
<td>1.99</td>
<td></td>
</tr>
<tr>
<td>Y8</td>
<td>5</td>
<td>.350559</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>Y9</td>
<td>5</td>
<td>.307508</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td>24.73 million Rs.</td>
<td></td>
</tr>
</tbody>
</table>
The present worth of an annuity factor used in computation of the present worth of equal amounts of investments / benefit between any two years in future. Yn and Yn + m is obtained by subtracting the present worth of annuity factor for Yn+m1. thus, for example, the present worth of the annuity factor for equal amounts of investment made between Y5 and Y12 at Y12 percent will be:

\[
\text{(annuity factor for Y}_{12}) - \text{(Annuity factor for Y}_{4})
\]
\[
= 5.937699 - 3.07349
\]
\[
= 2.900350
\]

The situation requiring application of this principle is illustrated below. The present worth of investment is worked out by the two methods.

(i) Discounting Method

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
<th>Discount factory</th>
<th>Present worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y0</td>
<td>-</td>
<td>1.000000</td>
<td>-</td>
</tr>
<tr>
<td>Y1</td>
<td>-</td>
<td>0.892857</td>
<td>-</td>
</tr>
<tr>
<td>Y2</td>
<td>-</td>
<td>0.797194</td>
<td>-</td>
</tr>
<tr>
<td>Y3</td>
<td>5.0</td>
<td>0.711780</td>
<td>3.558900</td>
</tr>
<tr>
<td>Y4</td>
<td>5.0</td>
<td>0.633518</td>
<td>3.177590</td>
</tr>
<tr>
<td>Y5</td>
<td>5.0</td>
<td>0.567427</td>
<td>2.837135</td>
</tr>
<tr>
<td>Y6</td>
<td>5.0</td>
<td>0.506631</td>
<td>2.533155</td>
</tr>
<tr>
<td>Y7</td>
<td>5.0</td>
<td>0.452349</td>
<td>2.0261745</td>
</tr>
<tr>
<td>Y8</td>
<td>5.0</td>
<td>0.403893</td>
<td>2.019415</td>
</tr>
</tbody>
</table>

Discounted Project Present worth: 16.3887940

(ii) Annuity Factor Method

AF for Y3 to Y8 = (AF for Y8) – (AF for Y2)
= 4.967640 – 1.690051
= 3.277588

Present worth of total investment = 5.0 x 3.277588

(e) Capital Recovery Factor

Most often the capital made available for a projects is to be repaid in equal amounts in a specified number of years. The capital is to bear compounding interest on the unpaid balance at a specified rate. In such cases the annual installments require to repay this loan in require number of years should be entered in the annual costs of the project for these years instead of the actual amount invested.

Suppose that a loan of Rs.15 million has been made available for investment in a project on the condition that the loan shall be repaid in 12 equal yearly
installments and shall bear compound interest at 14 percent on the unpaid balance. The loan is made available in Y₀ and repayment is to be made in yearly installment from Y₁. For the purpose of project analysis, the amount of Rs.15 million received in Y₀ is not to be shown in the stream of costs, instead Rs.265 million (Rs15 \times 0.176669) is to be reflected in year Y₁, Y₂, Y₃, Y₁₂.

3.4 Appraisal
In this section two computational techniques used in project appraisal shall be introduced. The purpose is to make an elementary presentation of these techniques to illustrate the underlying basic principles.

(a) Benefit-Cost Analysis
The decision to invest in a project is made if the benefit can reasonably be expected to be more than the costs. To state simply, a project is accepted if the benefit-cost ratio (benefit – cost) is greater than one. It should be emphasized that this is an extremely simplistic account of highly involved and sophisticated technique. The benefit-cost analysis can take various form and a number of quantitative indices have been developed to help arrive at a reasonably accurate estimate and to take into account a number of factors likely to influence the outcome of a project. There are thus techniques of computing internal rate of return, private rate of return and social rate of are turn etc.

The use of various techniques of cost-benefit analysis presupposes the ability to express project costs and benefits in commensurate (money) terms.

The underlying principle in all techniques of cost-benefit analysis is to obtain discounted present worth of the streams of costs as well as benefits.

(b) Internal Rate of Return
The internal rate of Return (IRR) of a project is that rate of discount at which the discounted present worth of benefits equals the discounted present worth of costs. Internal rate of Return may also be defined as the rate of discounted at which the net present worth of the net cash flow (stream of cost) minus benefit for each year of the life of the project is zero.

A simple example will clarify the fundamental principle involved. Take, the stream of costs and benefits of an Engineering College Project presented in the table on the next page (90). The project is estimated to cost Rs.350 million and is likely to be completed in four years. The investment to be made during these years is shown in col 2. The life of equipment, furniture and books is ten years. Thus, furniture has to be replaced in year 12 while 250 students are to be admitted from 1Y5. The benefits of the project (incremental expected life earnings) begin to accrue from 1Y9 when the first batch get employed. The benefits have not been based on any information of expected incremental earning of engineering graduates neither has any allowances been made for initial unemployment on graduation nor the number of graduate who might proceed to acquire post graduate engineering degree.

The net present value of the project is 8 percent is positive (Rs.75.51 million), whereas it is negative (-Rs.77.99 million) at 12 percent. Thus, the rate at which the net
The present value of the project shall be zero must lie between 8 to 12 percent. The approximate value is obtained by interpolation, as show below:

$$\text{IRR} = 8 + \frac{(12-8)}{57.51} - (-77.99)$$

$$= 8 + 4 \times 57.51 = 135.50$$

$$= 8 + 4 \times 57.51 + 228.4$$

$$= 8 + 1.69 = 9.69$$

The net cash flow is generally discounted twice. First, at a rate which experience and judgment suggest to be the likely rate of return. If the net present value of the project comes out to be positive, the next cash flow is discounted a second time at a higher rate so as to get a negative net present value of the project. If the next present value of the project on first discounting is negative, it is discounted a second time at a lower rate. The difference between two discounts should not exceed 5.

(c) Unit Cost
In situation where qualification of benefits is either not possible or involves sophisticated techniques, the per unit cost is used for purposes of project appraisal.

(d) Per Unit Capital Cost of Creating Facility
The simplest measure of per unit cost is the capital cost required for creating a facility – a seat in an educational institution, a bed in the hospital, providing employment to a worker, providing potable water connection to a housing unit, providing electricity connection to a tube-well etc. this measurement is obtained by dividing the total capital cost of the project by the number of facilities proposed to be created in the project.

In the Engineering College project costing Rs.350 million, it is proposed to admit 250 students annually into the four year course. The per unit cost of creating a seat in the college is Rs.350,000 (Rs. 350 million / 1000).

Similarly, in case of a project for the setting up of a hospital, the per unit capital cost of providing a hospital bed would be obtained by diving the total capital cost of the project by the number of beds in the hospital.

(e) Annual per Unit Cost
Another measurement is the annual per unit cost. This is the sum of annual per unit capital cost and annual per unit recurring cost.

(i) The annual per unit capital cost is obtained by determining separately the capital recovery factor (annual payments required to repay the cost by the end of its expected life) in respect of each investment item and then adding them up. The computation of the annual per unit capital cost of the Engineering college project will explain the computational procedure.
### ENGINEERING COLLEGE PROJECT ECONOMIC ANALYSIS

#### DISCOUNT (Million Rs)

<table>
<thead>
<tr>
<th>YEARS</th>
<th>CAPITAL COST</th>
<th>O&amp;M COST</th>
<th>TOTAL COST</th>
<th>BENEFITS</th>
<th>FACTOR 12%</th>
<th>FACTOR 8%</th>
<th>PRESENT WORTH 12%</th>
<th>PRESENT WORTH 8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>0.893</td>
<td>0.926</td>
<td>22.33</td>
<td>23.15</td>
</tr>
<tr>
<td>2</td>
<td>75</td>
<td>0</td>
<td>75</td>
<td>0</td>
<td>0.797</td>
<td>0.857</td>
<td>59.78</td>
<td>64.28</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
<td>0</td>
<td>150</td>
<td>0</td>
<td>0.712</td>
<td>0.794</td>
<td>106.80</td>
<td>119.10</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0.636</td>
<td>0.735</td>
<td>63.560</td>
<td>75.53</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>0</td>
<td>0.567</td>
<td>0.681</td>
<td>28.35</td>
<td>34.05</td>
</tr>
<tr>
<td>6</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>0</td>
<td>0.507</td>
<td>0.630</td>
<td>25.35</td>
<td>31.50</td>
</tr>
<tr>
<td>7</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>0</td>
<td>0.452</td>
<td>0.583</td>
<td>22.60</td>
<td>29.15</td>
</tr>
<tr>
<td>8</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>0</td>
<td>0.404</td>
<td>0.540</td>
<td>20.20</td>
<td>27.00</td>
</tr>
<tr>
<td>9</td>
<td>50</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>0.361</td>
<td>0.540</td>
<td>18.05</td>
<td>25.00</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>0.322</td>
<td>0.3463</td>
<td>16.10</td>
<td>48.30</td>
</tr>
<tr>
<td>11</td>
<td>50</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>0.287</td>
<td>0.429</td>
<td>14.35</td>
<td>43.05</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>0.257</td>
<td>0.397</td>
<td>20.56</td>
<td>38.55</td>
</tr>
<tr>
<td>13-23</td>
<td>50</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>1.524</td>
<td>2.835</td>
<td>76.20</td>
<td>228.60</td>
</tr>
<tr>
<td>24 (sv)</td>
<td>55</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>0.066</td>
<td>0.158</td>
<td>-3.63</td>
<td>-8.69</td>
</tr>
</tbody>
</table>

| 325 | 950 | 1275 | 2250 | 490.64 | 412.65 | 636.15 | 693.60 |

1. PWC AT 12% DISCOUNT RATE = Rs.490.64 million
2. PWB AT 12% DISCOUNT RATE = Rs.412.62 million
3. BCR AT 12% DISCOUNT RATE = PWB/PWC = 1
4. NPW AT 12% DISCOUNT RATE = PWB / PWC = Rs.0.84 million

IRR = LDR + (Hdr-LDR) X (NPW at LDR/SUM OF TWO NPWS absolute)

**Notes:**
(a) Benefits are the incremental earnings assumed to be as increase in productivity in the economy.
(b) Capital and O&M cost are without taxes and duties.

SV = Salvage Value
O&M = Operating and Maintenance
PWC = Present worth of cost
PWB = Present worth of benefits
NPW = Net Present worth
LDR = Lower discount rate
HDR = Higher discount rate
### ANNUAL per Unit Capital Cost of Engineering College

<table>
<thead>
<tr>
<th>Investment item</th>
<th>Cost (Million Rs)</th>
<th>Expected life</th>
<th>Capital recovery factor at 12%</th>
<th>Annual capital cost (Million Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>175</td>
<td>40</td>
<td>0.121304</td>
<td>21.228</td>
</tr>
<tr>
<td>Equipment</td>
<td>145</td>
<td>10</td>
<td>0.176984</td>
<td>25.663</td>
</tr>
<tr>
<td>Books</td>
<td>20</td>
<td>10</td>
<td>0.176984</td>
<td>3.540</td>
</tr>
<tr>
<td>Furniture</td>
<td>10</td>
<td>10</td>
<td>0.176984</td>
<td>1.770</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>52.201</strong></td>
</tr>
</tbody>
</table>

Annual per unit capital cost:

\[ \text{Annual per unit capital cost} = \text{annual capital – cost of students} \]

\[ = \text{Rs.52.201 million} - 100 \]

\[ = \text{Rs.52,201} \]

(i) The annual per unit recurring cost is much simpler as it is simply the total annual recurring cost divided over the number of students. For the Engineering college project the per unit recurring cost:

\[ = \text{Rs.125 million} - 100 \]

\[ = \text{Rs.12,500} \]

If the annual per unit cost is equal to or less than the per unit cost of other engineering college or similar institutions the project may be accepted otherwise, it may be revised to make it cost effective.

The above computation of annual per unit capital cost is based on two assumptions. The first is about the expected life of different investment items – building, equipment, furniture, books vehicle etc. it must be clearly understood that there is no scientific basis for assuming the life buildings to be forty year nor is there any for taking the life of equipment to be ten years. The only basis is judgment based on sound common sense and practical experience besides established convention. It would be perfectly justifiable to take longer or shorter lives in special projects if dictated by sound technical considerations. For example, in a fast developing scientific field, the equipment bought in 1985 be become obsolete by 1990. In some projects the life of the building may be shorter than forty years because of the special purpose to which the building is put or due to greater wear and tear or due to wiggeries of weather.

The second implicit assumption is that at the end of the expected life of the items the investment shall be reduced to zero value, or in other words these items shall have no salvage value. This is in practice not true because the building (particularly and land) shall have some value. Even equipment, furniture, books and vehicles have some salvage value.
(f) **Salvage Value**

In a more sophisticated computation of per unit annual capital cost, the value obtained above is reduced by the amount of the annual deposit required to reach the salvage value of various items of investment (building, equipment, furniture, books etc) at the end of their assumed life. The salvage value of building and land is generally taken at 25% of their while that of other items is taken at 10% (this gain is purely judgmental). To get this amount, the sinking fund factor is used.

To illustrate, the investment costs on various items in the above example are adjusted below:

<table>
<thead>
<tr>
<th>Items</th>
<th>Cost</th>
<th>Expected life</th>
<th>Salvage Value</th>
<th>Sinking Fund at 12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>175</td>
<td>40</td>
<td>25</td>
<td>43.75</td>
</tr>
<tr>
<td>Equipment</td>
<td>145</td>
<td>10</td>
<td>10</td>
<td>14.50</td>
</tr>
<tr>
<td>Books</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>2.00</td>
</tr>
<tr>
<td>Furniture</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: The Sinking fund factors are in respect of the expected life.

The salvage of the building (likely to be available at the end of 40 years) is 25% of its cost i.e. Rs.43.75 million. The amount of annual deposit required to reach this salvage value at the end of the 40 years is obtained by multiplying this salvage value by the sinking fund factor (43.75 x 0.0013).

Thus, the annual capital cost of the Engineering College project should be reduced by Rs.1.053 million to account for the amount of salvage value of various items of investment. The annual capital cost of the project shall thus be:

\[
\text{Rs.}(52.201 - 1.053 \text{ million}) = \text{Rs.}51.148 \text{ million}
\]

4. **KEY ISSUES IN APPRAISING PROJECTS**

Key issues in appraising projects include the following:

4.1 **Need, Targeting and Objectives**

The starting point for appraisal: applicants should provide a detailed description of the project, identifying the local need it aims to meet. Appraisal helps show if the project is the right response, and highlight what the project is supposed to do and for whom.
4.2 **Context and Connections**
Appraisal should help show that a project is consistent with the objectives of the relevant funding program and with the aims of the local partnership. Are there links between the project and other local programs and projects – does it add something, or compete?

4.3 **Consultation**
Local consultation may help determine priorities and secure community consent and ownership. More targeted consultation, with potential project users, may help ensure that project plans are viable. A key question in appraisal will be whether there has been appropriate consultation and how it has shaped the project.

4.4 **Options**
Options analysis is concerned with establishing whether there are different ways of achieving objectives. This is a particularly complex part of project appraisal, and one where guidance varies. It is vital though to review different ways of meeting local need and key objectives.

4.5 **Inputs**
It’s important to ensure that all the necessary people and resources are in place to deliver the project. This may mean thinking about funding from various sources and other inputs, such as volunteer help or premises. Appraisal should include the examination of appropriately detailed budgets.

4.6 **Outputs and Outcomes**
Detailed consideration must be given in appraisal to what a project does and achieves: its outputs and more importantly its longer-term outcomes. Benefits to neighborhoods and their residents are reflected in the improved quality of life outcomes (jobs, better housing, safety, health and so on), and appraisals consider if these are realistic. But projects also produce outputs, and we need a more realistic view of output forecasts than in the past.

4.7 **Value for Money**
This is one of the key criteria against which projects are appraised. A major concern for government, it is also important for local partnerships and it may be necessary to take local factors, which may affect costs, into account.

4.8 **Implementation**
Appraisal will need to scrutinize the practical plans for delivering the project, asking whether staffing will be adequate, the timetable for the work is a realistic one and if the organization delivering the project seems capable of doing so.
4.9  Risk and Uncertainty

You can’t avoid risk – but you need to make sure you identify risk (is there a risk and if so what is it?), estimate the scale of risk (if there is a risk, is it a big one?) and evaluate the risk (how much does the risk matter to the project.) There should also be contingency plans in place to minimize the risk of project failure or of a major gap between what’s promised and what’s delivered.

4.10  Forward Strategies

The appraisal of forward strategies can be particularly difficult, given inevitable uncertainties about how projects will develop. But is never too soon to start thinking about whether a project should have a fixed life span or, if it is to continue beyond a period of regeneration funding, what support it will need to do so. This is often thought about in terms of other funding but, with an increasing emphasis on mainstream services in neighborhood renewal, appraisal should also consider mainstream links and implications from the first.

4.11  Sustainability

In regeneration, sustainability has often been talked about simply in terms of whether a project can be sustained once regeneration funding stops but sustainability has a wider meaning and, under this heading, appraisal should include an assessment of a project’s environmental, social and economic impact, its positive and negative effects. While appraisal will focus detailed attention on each of these areas, none of them can be considered in isolation. Some of them must be clearly linked – for example, a realistic assessment of outputs may be essential to a calculation of value for money. No project will score highly against all these tests and considerations. The final judgment must depend on a balanced consideration of all these important factors.

4.12  Checklist for Project Appraisal

Whether you are involved in a partnership with an appraisal system in place, or starting to design one from scratch, these questions are worth asking.
1. Are appraisals systematic and disciplined with a clear sequence of activities and operating rules?
2. Is there an independent assessment of the project by someone who has not been involved with the development of the project?
3. Does the appraisal process culminate in clear recommendations that inform approval (or rejection) of the project?
4. Is the approval stage clearly separate?
5. Is the appraisal process well documented, with key documents signed, showing ownership and agreement, and allowing the appraisal documentation to act as a basis for future management, monitoring and evaluation?
6. Does the appraisal system comply with any relevant government guidance?
7. Are the right people involved at various stages of the process and, if necessary, how can you widen involvement?
5. ASPECTS OF PROJECT APPRAISAL

By their very nature projects in different sectors differ in the degree of importance attached to, and extent / nature of data / information available with regard to different project components. For example, projects in industrial sector are rich in data required for determining commercial profitability investment profitability and permitting liquidity analysis and capital structure analysis. Both the inputs and outputs are known and quantifiable. If a machinery is to be installed, its inputs and outputs are given by manufacturers. On the other hand, projects in social sector have a large number of unknown quantities. How could the output of teachers or doctors be quantified, how could the demand for a certain type of education be projected. Hence, projects in social sectors are, generally, extremely deficient in data which could be used to compute benefit-cost of the project.

Non-availability of data amenable to quantitative analysis does not negate completely the possibility of a through appraisal of a project. As elaborated earlier, a project should contain all relevant data and useful information to establish its need, feasibility and profitability. It would be recalled that a project should describe the proposed intervention(s), should give data pertaining to feasibility, should furnish break-up of costs and describe / quantity benefits, should detail administrative arrangements and should provide a schedule of work.

To enable the decision maker to take a decision the project should be appraised from all different points of view. The economic, the financial, the technical the managerial, organizational aspects environmental analysis, social analysis and cross cutting issues are some of the components of the project that must be carefully appraised in order to arrive a comprehensive view of the project viability, feasibility and desirability.

5.1 The Technical Aspect

In the technical appraisal of the project, the main question is whether the project is sound from technical point of view. According to the World Bank, “sound engineering is fundamental to project preparation and appraisal.” However, the word engineering should be interpreted very broadly. A project may be regarded as technically sound if it can be reasonably expected to achieve the results through the proposed intervention(s). The proposed intervention(s) being based on a critical analysis of the sector concerned should be designed to redress the defects / deficiencies thus identified. All aspects of the tissue, all factors affecting the problem should be tackled through the intervention(s) proposed.

Technical appraisal of a project seeks to ensure that possible alternatives have been adequately considered and that the correct technical solution adopted. This means,


for example that the right combinations of inputs (seeds, pesticides, and fertilizers for a crop-growing project or the correct system of drainage for an irrigation project or in case of a road project that the width of the road, the shoulders and the thickness of pavement
appropriate to the traffic have been chosen. In case of an education project this may involve examination of the appropriateness of the number and layout of classrooms, laboratories, and other facilities for the proposed input of students and the envisaged curriculum. The appropriateness of the proposed methods and processes must be evaluated and relative scarcity / abundance of capital and labour. Technically advanced processes likely to have labour displacement effect may not be very useful in third world countries.

The technical analysis of the project often involves examination of the scale of the project. Certain facilities can work economically only on a large scale and to establish such facilities on a more restricted scale may be misuse of scarce resources. The proposed scale of a project must be considered in the light of technically efficiency, cost of production as well as the prospective demand.

Technical appraisal must take into account the appropriateness of location and layout of the project. The examination of proposed location involves question pertaining the source of raw material, utilities, skilled and unskilled labour as well as market to be served. In the context of education projects location may affect the availability of students and teachers. Location may also increase the cost of the project if residential and hostel facilities have to be created on a large scale and if utilities are not available. The layout of a project maybe important from the point of view of future expansion.

The examination of the work schedule and identification of likely causes of delay form an important part of the technical aspect of project appraisal. The work schedule must take into account seasonal or other variations in working conditions which might interfere with the project. The analysis of estimated costs of creating the facility also form part of technical analysis of the project. So we can say that technical analyses of a project is aimed at ensuring the following:

i. To confirm the source of the project proposal, nature of the studies – including feasibility studies undertaken before the proposal, and the nature of decisions taken by all relevant authorities involved
ii. That the problem or the need to be resolved by the project has been clearly stated
iii. That the project has been clearly spelled out with the correct technical design details (such as size, location, timing, and technology)
iv. That the required materials have been correctly determined and their source identified
v. That the costs of the project have been clearly established, expected product prices projected, and payment modalities and schedules agreed to

5.2 The Economic Aspect

In the appraisal of project from an economic point of view an attempt is made to answer three related questions:
(i) Is the project located in the sector whose development is likely to contribute significantly to the development of the whole economy? This is essentially a question of sectorial priority.
(ii) Is the project likely to contribute effectively to the development of the sector?
(iii) Is the contraction of the project likely to be commensurate with the use of the quantities of scarce resources (investment capital including foreign exchange, managerial talent, skilled labour etc).

i. **Demand for Goods and Service**

In answering the above questions and analysis of the general level of future requirements for goods and services to be provided by the project shall have to be made. The character of this analysis will vary from sector to sector. For example, the analysis of the demand for a small power project may require the study of only a small market area whereas the assessment of the demand for a steel mill might well require analysis of the world market. The character of the analysis of demand for goods and services may vary even for projects within a sector. Thus, the demand for a training college for primary school teachers may require an analysis of projected school enrolment based on population projections and participation and promotion rates for the particular area or province to be served by that college. However, the demand for a highly specialized Institute of Nuclear Physics would require the analysis of future requirements of the country as a whole.

(b) **Real cost to the Economy**

For an assessment of the economic justification of a project, an economic rate of return is to be calculated. Such a calculation compares the measurable costs and benefits of the project to the economy as a whole. This exercise demands that the value of each input and output of the project should approximately reflect its real scarcity. The prevailing market prices of all factors of production could only be used if these were determined by the free play of market force. Any interference with the free play of demand and supply distorts the price of all factors of economy. Such measures adopted government as; protective tariffs and quantitative restrictions on imports by exports prices, production and sales; monologists’ controls of production and prices; wages exceeding the real cost of labour fixed by government on trade union action distort the real values to the economy of various factors of production. The factors often distorted by state interference are economy rates and labour wages.

The costs of a project the economy is what the economy has to give up in order to undertake the project. The measure of a particular project’s cost is given by that we could have done with these resources in alternative uses. For example, use of unskilled labour during non-harvest season does not really subtract much from output elsewhere in the economy due to the prevalence of extensive or under employment among unskilled workers. Thus the cost to the economy of using unskilled labour is almost nil and labour wages reflected in the project are artificially low because of foreign exchange control by State Bank. As an incentive to the private sector the cost of capital is also kept substantially low by state regularly measure.

(c) **Economic**

The appraisal of the economic aspect of the project involves benefit-cost analysis of difference technical solutions to arrive at the one which gives highest economic return. In project appraisal from an economic point of view, particularly that of revenue yielding
projects, it is necessary to take into account the effect of fluctuations on costs of major inputs and outputs, and some other crucial variables. It is obvious that the net project cash flow will show changes corresponding to these fluctuations. Some profitable may not remain viable even if there is slight variation in the prices in the world market because of heavy dependence on fluctuation due to their cost structure. Naturally, one would prefer to invest in projects whose profitability is not affected greatly by such fluctuations. The techniques used for this purpose is known as “sensitivity analysis”.

A number of sophisticated techniques are “used in benefit-cost analysis projects from one economic point of view. Two of these techniques, namely shadow pricing and sensitivity analysis, have been barely touched upon in this unit. Those who have the aptitude and the appetite can refer to books on the subjects.

5.3 The Commercial Aspect

The appraisal of projects from the commercial point of view is of particular importance to revenue-earning enterprises. The basic question here are whether adequate arrangements have been made for buying the material and services required to construct the facility and for obtaining required material, services and utilizes to operate the facilities and market the output. The commercial appraisal also includes an evaluation of the market demand for the output and the adequacy of marketing channels.

5.4 The Financial Aspect

The appraisal of projects from the financial point of view also pertains primarily to revenue producing projects. There are two basic issues of concern for financial appraisal the project. The first is whether or not sufficient funds would be available for the construction of the project and the second is whether the enterprise will be able to meet all its financial obligations when it is in operation. The financial appraisal deals with (I) the amount of costs and revenues, (II) prospective liquidity, and (III) financial rate of return in the operating phase. The financial project appraisal highlight the need to adjust the structure and the level of prices charges by the enterprise.

Financial Analysis takes a hard look at the funding sources for the project both in terms of completing the project and for its sustained operation. This analysis should question if:

i. The project would fund from internal resources?

ii. The project would fund from external resources?

iii. The external resources would be borrowed funds?

iv. If the funds are to be borrowed, would they be able to pay back the loan with accrued interest?

v. Would the external resources be a grant from the central government or from any other source?

vi. Would the co-fund the project with an outside donor, whether it is a central government or another development partner?

vii. Would effective cost recovery mechanisms aimed recouping the project costs be put in place?

viii. Would financial management modalities be put in place to record the transactions during implementation and operation of the project? Documents could include
cashbook, assets register, bank statements, balance sheet (accruals accounting),
income statements (or receipt and payment schedules), etc.

5.5 The Managerial Aspect

The appraisal of the management aspect is perhaps the most difficult one partly
because it is an art based on personal experience and judgment. One of the main
difficulties arises from the limited concept of the role of management held by many. It is
for this reason that exclusive attention is paid to the day to day running of routine
business to the utter neglect of some of the other aspects like marketing, labour relations
and financial planning etc. shortage of trained and experienced managers is one of the
main reasons for poor results of development planning efforts.

5.6 The Organizational Aspect

The appraisal of project from this aspect concerns itself with the question of the
organizational structure most suited to the successful carrying out of the project. The
appraisal deals with the questions of organization needed to bring the project up to
the operational stage and the organization needed thereafter. The issue relating the
organizational set-up at the construction stage generally concerns itself with the
suitability of existing organization which has constructed other projects for implementing
the proposed project. At the operational level the organizational issues relate to the extent
to which responsibility and authority would be centralized or delegated.

In view of differences in the nature, type and extent of data available in projects in
different sectors and also in view of differences in project objectives, different aspects of
project appraisal would acquire greater importance in the appraisal exercise.

5.7 Environmental Analysis

Depending on the nature of the project, it is important that the project is seen to
comply with the various environmental requirements as administered by the
Environmental Management Authority. Environmental aspects that projects would have
to address include;
1. Public health and occupational safety
2. Control of air, water and land pollution
3. Management of renewable natural resources (plants and animals)
4. Efficient use of natural resources through multiple use, recycling and erosion
   control
5. Conservation of unique habits (forests, game reserves) for rare species and cultural
   preservation.

5.8 Social Analysis

The validity of the planners’ assumptions about the social conditions is tested
through social analysis. Where necessary, adjustments should be made so that the project
goals are expressed in terms that have more meaning for both the project population and
the implementing agencies. Social analysis focuses on four areas indicated below;
i. The social-cultural and demographic characteristics of the project population – its
   size and social structure, including ethnic, tribal and class composition.
ii. How the project population has organized itself to carry out productive activities, including the structure of households and families, availability of labour, ownership of land, and access to and control of resources

iii. The project’s cultural acceptability; in other words, its capacity both for adapting to and for bringing about desirable changes in people’s behaviour and in how they perceive their needs.

iv. The strategy necessary to elicit commitment from the project population and to ensure their sustained participation from design through to successful implementation, operation and maintenance.

The figure below depicts a situation still prevailing in certain areas in Uganda where the girl child is relegated parental duties at an early age while the brother goes to school.

5.9 Cross Cutting Analysis

The above mentioned principles of social analysis are equally relevant in appraising the impact of cross cutting issues, such as HIV/AIDS, environment, and gender issues, on the viability of a project. This is particularly relevant when making sure that the indirect costs and benefits attributable to crosscutting issues are fully articulated and considered in estimating the overall cost benefit of the proposed project.

Limitations of the Project Appraisal

There are a number of shortcomings in the project appraisal techniques described above and these should be fully recognized while using them as decision making tools. Some of these limitations are listed below:

(i) Quality of project analysis depends on the quality of data and forecasts made about costs and benefits. Over-estimation of benefits and underestimation of costs are quite common to get the project approved, if the executing and approving authorities are different.

(ii) In view of the uncertainty about the future it is impossible to quantify completely the risks though sensitivity analysis is one way to examine strength of a project against future uncertainties.

(iii) Project analysis is a partial analysis where it is assumed that project will not change the macro-economic variables. Such an assumption is not always true and if analysis are not based on the existing prices it is not going to give a true picture of the project.

(iv) It is useful device where benefits can be quantified. Projects related to health, education, rural development etc, where benefits cannot be quantified easily, benefit-cost analysis has little to offer except going for least cost (if same objective could be achieved in different possible ways). Similarly, project analysis is a useful tool only if major part of benefits is quantifiable. In case where non-quantifiable externalities (e.g. job creation, regional development, development of skill, transfer of technology) are substantial project analysis becomes less formals.
Project analysis is useful when there are definite starting and finishing points. It could not be used for ongoing services like police, hospital, educational institutions etc.

6. APPRAISAL OF EDUCATIONAL PROJECTS

As described above the project appraisal technique of benefit cost analysis can only be applied in cases where both costs and benefits are quantifiable. By contrast the output of an educational system is not a marketable commodity. The life-time differential in earning of graduate of an education institution at a particular level is only part of the benefits of education imparted in that institution. The individual graduating from that institution has more option available to him now than before both for pursuing further education as well as for employment. He has not greater prospects for socioeconomic mobility. The avenues thus opened up for leading a better quality of life are not amenable to qualification. Similar is the case with benefits are fully quantifiable.

Neither are costs of education fully measurable. The cost to the individual is different from the cost of society. Income foregone by the individual and the loss in production to the economy are also part of costs of education not generally reflected in projects. Only part of the direct costs and very little of the indirect costs are reflected in project. Any qualification attempted in the projects is based on a large number of optimistic assumptions.

Because of these constraints, projects in social sector emphasize social benefit likely to accrue from the project such as more equitable distribution of services, equality of opportunity, better income distribution, improvement in the quality of life etc.

Activity - V

At the end of our long, arduous and boring journey, you should put together the scattered pieces to construct the framework for appraisal of educational projects. This would be the only interesting and exciting outcome of the whole exercise.

7. SELF-ASSESSMENT QUESTIONS

Q. 1 Define the project appraisal. How it is different from the project evaluation?

Q. 2 Discuss the role of educational planner in the process of project appraisal.

Q. 3 Discuss the importance of project appraisal in the project cycle.

Q. 4 Critically analyze different aspect of the project. To what extent these are helpful in the finalization of a workable project.

Q. 5 Elaborate some of the techniques being applied in the project appraisal.
Unit–5

PROJECT EVALUATION

Written by: Dr. Muhammad Arif Zia
Revised by: Ms. Tahira Bibi
OBJECTIVES OF THE UNIT

After going through unit, you are expected to:

1. Explain the basic difference between project appraisal and evaluation.
2. Describe different kinds of project evaluation identification.
3. Be able to discuss the basic characteristics of a good evaluation design.
4. Be able to develop operative indicators for an educational project.
5. Be able to carry out project evaluation independently.
## CONTENTS

<table>
<thead>
<tr>
<th>1. Introduction Project Evaluation</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Appraisal and Evaluation</td>
<td>109</td>
</tr>
<tr>
<td>1.2 Project</td>
<td>109</td>
</tr>
<tr>
<td>1.3 Project Appraisal</td>
<td>109</td>
</tr>
<tr>
<td>1.4 Self-Assessment Questions–I</td>
<td>111</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Evaluation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Definition</td>
<td>112</td>
</tr>
<tr>
<td>2.2 Categories of Evaluation</td>
<td>112</td>
</tr>
<tr>
<td>2.3 Front-end Analysis</td>
<td>112</td>
</tr>
<tr>
<td>2.4 Evaluability Assessment</td>
<td>113</td>
</tr>
<tr>
<td>2.5 Formative (Development Process) Evaluation</td>
<td>113</td>
</tr>
<tr>
<td>2.6 Impact (Summative, Outcome, Effectiveness, Evaluation)</td>
<td>113</td>
</tr>
<tr>
<td>2.7 Programme Monitoring</td>
<td>113</td>
</tr>
<tr>
<td>2.8 Evaluation of Evaluation</td>
<td>114</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. A Basic Evaluation Study Design</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Criteria for Designing the Study</td>
<td>116</td>
</tr>
<tr>
<td>3.2 Distinctive Features of an Evaluation Study</td>
<td>117</td>
</tr>
<tr>
<td>3.3 Structure and Design</td>
<td>118</td>
</tr>
<tr>
<td>3.4 Data Collection and Preparation</td>
<td>118</td>
</tr>
<tr>
<td>3.5 Data Analysis and Interpretation</td>
<td>118</td>
</tr>
<tr>
<td>3.6 Communication and Disclosure</td>
<td>119</td>
</tr>
<tr>
<td>3.7 Utilization</td>
<td>119</td>
</tr>
<tr>
<td>3.8 Self-Assessment Questions–II</td>
<td>120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. The Methodology of Evaluation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Checking the Relevance of the Project</td>
<td>120</td>
</tr>
<tr>
<td>4.2 Identifying Performance Indicators</td>
<td>121</td>
</tr>
<tr>
<td>4.3 Selected Output indicators</td>
<td>122</td>
</tr>
</tbody>
</table>
1. INTRODUCTION OF PROJECT EVALUATION

Upon this time you have gone through the process of project implementation. You also know the need and importance of appraisal activities and understand how these are carried out. Along with the implementation, the process of evaluation begins. Therefore, this unit deals with project evaluation. In the very beginning, you will also find a few paragraphs on project appraisal, only to re-orientates you with what you have already learnt.

This unit covers only the functional side of the process. Theoretical and philosophical base has intentionally been avoided to keep the unit handy and palatable.

1.1 Appraisal and Evaluation

Evaluation and appraisal, the twin terms are frequently used in modern social disciplines. They denote a kind of check on the working of persons, posts, projects and also organizations. Often, they are used synonymously; but to be specific, evaluation is a feedback mechanism to make sure that the launched operation is working effectively. The appraisal, on the other hand, is comparatively a broad term and stands for a procedure to ascertain whether assigned responsibilities have been satisfied. Every person (or group) in the organization is answerable (or responsible) to some degree to another person (or position) for something (or objectives) expressed in terms of performance level (or results or achievements) to be realized within certain constraints (such as a specific time period, or stated financial limits).

The difference between the two terms is that of objectives in the background. Evaluation is a feedback process generating a need for changes / modifications in the operating process, assigning duties and sometimes venues and sites selected. Appraisal is, more or less, job oriented and mainly concentrates on the working of a person in some specific position. But when applied to a project, it is a comprehensive and systematic review of a project, with a view to making a critical assessment of its justification, standards, costs, feasibility etc and its consistency with the organization’s objectives and programmes. While appraisal relates to the planning aspect of a project, the evaluation comes in with the implementation process.

1.2 Project

A project, as you know, is a set of activities aiming at the accomplishment of specific tasks and achievement of certain targets within a given period of time. It can take place in one or more geographical areas and among a specific group of clientele. Usually a project is implemented under the management of one administrative authority and with specific financial allocations. But there is always a possibility of consortium type projects supervised and financed by administrative groups.

1.3 Project Appraisal

After the project identification and preparation of detailed outline of costs and implementation process, there comes the stage of appraisal, which, as already explained, is basically a critical assessment of its justification to be launched and executed. Any
criteria for appraisal closely relates to the type of project under appraisal. In the field of education a project can relate to:
(i) School construction programme.
(ii) Staff training activities.
(iii) Software supply.
(iv) Textbooks preparation and printing.
(v) Most of all, in countries like Pakistan, a project for the quantitative and qualitative improvement of the education system.

For critical appraisal of the project, a certain in set of criteria seems necessary, in order to ensure that the proposed project meets the organization's standards and objectives. But as expressed in above lines, whatever the criteria may be developed, it will basically focus on the nature of activity selected for execution.

A list of main criteria frequently used in UNESCO work is given below:

(a) **Relevance**
   A project should be directly related to the priorities established by the government / organization. It should also be relevant to the needs of the country and help to solve some of the problems faced by the clientele. It should conform to the accepted policy objectives of:
   (i) The funding agencies.
   (ii) Sponsoring organization.
   (iii) Government of the country.

(b) **Technical Soundness**
   (i) The proposed methods and procedures of the project should be technically sound an appropriate according to the available educational research and experience.
   (ii) building design and materials should also be developed in the light of latest research findings. Methods adopted for the production and distribution of books should be technically sound.
   (iii) All proposed inputs for operating the project programmes (institutions) should be either instantly available or produced by the project itself (student’s intake, teachers, technicians etc)

(c) **Feasibility**
   (i) Necessary decisions and measures needed for project implementation should be politically viable. Any project decision / activity creating local or national leadership reaction can jeopardize all investment made for the project.
   (ii) Usually in developing countries most of educational projects are either funded or partially sponsored by some external agencies. Huge amounts are lavishly spent without caring for the financial capacity of the hosting government to further continue the programme. It is necessary that financing of the project itself and of the recurring costs necessitated to continue the activity after the closure of the project may be kept in mind.
(iii) Disregarding the funding organization, the administrative should be the sole responsibility of the host government. Activities emerging out of the project implementation should also fall within the country’s administrative control.

(iv) Often projects are of some innovative nature. They are planned either to introduce or test some new approach in teaching methods / curriculum development etc. as there is always possibility of failure, therefore, it wise that the innovative methods and procedures should either be introduced in a limited scale or tested in advance if they are to be used on massive scale in the project.

(v) A project, in no case, should be Hollywood set. It should only be approved for implementation if there is sufficient cope for its application and replication in other areas of the country on a large scale.

(d) **Efficiency**

(i) As already mentioned, usually, the cost of a project is very high. Often, as the people are recruited on adhoc terms, they are given better scales. But it adversely affects the total financing of a programme. In an efficient project the cost should be reasonable as compared to the expected benefits. Before deciding about the final approval of a project a cost-benefit analysis seems most necessary.

(ii) Due to dearth of coordination among different public as well as private organization, often, similar projects are launched simultaneously under different controls. Efforts should be made to ensure that the project under consideration is not a duplication of any other ongoing project or a recently completed project. However, it should be appreciated if a project forms a part of any other project and helps to study a whole array of variables in some field. Such kind of coordination helps in minimizing costs and maximizing outputs.

These criteria are frequently used by the funding agencies and administrative departments. But decision made at an earlier stage may prove wrong during the implementation stage. It seems most appropriate if the approving authority imagines a simulation model of proposed activities and analyses the imaginative outcomes before final approval.

**Activities**

You might have come across many ongoing development projects in the field of education, agriculture and rural development. Write an appraisal report of any one of these projects, selecting according to your own field of interest.

1.3 **Self-Assessment Questions-I**

1. Describe the process of appraising efficiency of a project in education.
2. How can we differentiate between appraisal and evaluation of a project?
3. What are the basic conditions of relevance of a project in education?
2. EVALUATION

As already discussed in the previous section, the evaluation is a kind of feedback process needed for the improvement of implementation and execution task. Information gathered through the evaluation task forms the base of future planning. It is through this activity that planning becomes an unending task and very evaluation gives birth to new planning for further improvement and elevation. It is an effective tool for development, change and optimization of outcomes. No doubt a summative and comprehensive type of evaluation is necessary at the end of every project, but this should not be an end in itself. An educational project should have a built-in-system of evaluation to use it more fully and at all stages in the process of educational change and development.

2.1 Definition

Evaluation related to a project of educational development and if we agree that a project is a collection of activities planned to achieve a common good, then, of course, the project evaluation is an effort to judge the extent and efficiency of accomplishment and to find ways for its improvement.

Project evaluation is a kind of enterprise in which the majority of people, who plan and carryout the task of education development, are involved.

2.2 Categories of Evaluation

Generally the people think that the evaluation of a project is just a one shot activity. But, in fact, it is only one aspect of the whole array of the programmes undertaken to seek comprehensive feedback for changes, modifications and improvements needed in a project. Categories of evaluative work can be defined by both the purpose of evaluation and by the kind of activities to be stressed during the evaluation process. Six general categories defined by Evaluation Research Society are given below:

2.3 Front-End Analysis (Pre-installation, Context, Feasibility, Analysis)

This evaluation takes place before the installation of a project and intends to access and estimate the needs of the project. It also takes stock of the adequacy of project conception and its operational feasibility. For adequate implementation of the project programmes, sources of financial support and availability of other necessary paraphernalia is ascertained. Suitability of organizational set up crated to implement the project activities is also evaluated. This is an all-encompassing activity designed to analyse different components of the project for getting useful guidance for refinement if needed and determining whether the programme can be implemented at all.

If a project proposal has already been appraised according to the set criteria, then there remains little scope for making front-end analysis as activities included in this analysis and in the “Appraisal” are mostly over-lapping.

In social sciences where universal acceptance of terms does not exist, many writers coin their own terms and thus cause confusion to the beginners.
2.4 **Evaluability Assessment**

This is a kind of cost-benefit analysis of evaluation process itself. Therefore, it includes testing or appraising of an on-going programme of evaluation to see whether the benefits obtained from this process justify the cost incurred. The development of evaluability assessment indicated the growing concern of professionals over the cost of evaluation in relation to its benefits. Evaluability assessment also identifies the general features of the programme that facilitate or hinder evaluation efforts. This may sometimes include technical feasibility of the evaluation process just as an inquiry into the validity of performance indicators developed for the evaluation of the project. One may like to discuss policy matters only for necessary understanding of the outcome of evaluation and its impact on the overall plan performance.

2.5 **Formative (Development Process) Evaluation**

This is a kind of action research undertaken to test or appraise the process of an ongoing project to suggest immediate modifications for improvement. Activities of this evaluation often include interactions, evaluation of different persons involved, personnel appraisals, and surveys of attitudes towards the programme and analysis of management practices.

In some cases, the term “formative evaluation” is applied to field testing a programme in a small scale before deciding for its application on a mass level. Therefore, the formative evaluator works quite closely with the project designers and administrators.


2.6 **Impact (Summative, Outcome, Effectiveness) Evaluation**

This evaluation is taken up to find out how effective on entire project has been. The results reached at by the impact evaluation are usually called “Programme result review”. They provide very useful information for reaching major decisions of programme continuation, expansion or reduction.

The most important test of the evaluator is to develop appropriate indicators of impact and to be able to attribute types and amount of impact to the project rather than to other variables. This usually requires some knowledge of conditions prevailing before the implementation of the project or in the absence of the project.

2.7 **Programme Monitoring**

It is the most practical category of evaluation and there is increasing interest in monitoring projects that have already gone into actions. Monitoring is a kind of check to see whether the activities originated with the implementation of the project are in compliance with the policy of the organization. It may also see whether all the activities are being executed according to the scheduled programme, i.e. appointment of staff,
supply of material, construction of buildings, installation of machinery, equipment etc, are taking place as planned in the project.

Monitoring is most useful for timely detection of delays and failures in meeting the targets.

Recently, Management Information System (MIS) has become a part of monitoring. This supplied current data on all aspects of project implementation on regular basis and work as a permanent source of feedback.

2.8 Evaluation of Evaluation (Secondary Evaluation, Meta Evaluation, Evaluation Audit, Utilization Evaluation)

Evaluation of evaluation or as commonly used secondary evaluation is most frequently applied to impact (summative) evaluation when some conclusions have been arrived at about the overall performance of a project. It is controlled by various interests such as the requirements of agencies partially funding the programme or sponsoring it in collaboration with the host government. Often, the field experts need to confirm the findings of impact study by taking up a secondary evaluation as sometimes the evaluators do not show willingness to go against their vested interest.

Evaluation of evaluation can take a variety from ranging from professional criticism of evaluation reports and procedures to a re-analysis of original data or the collection of new information with some different hypotheses in mind. When a programme involves widespread public interest, this evaluation analyses the results of different evaluations of programme units to find out overall impact of activity.

3. A BASIC EVALUATION STUDY DESIGN

In the design of a study care is to be taken to show the comparisons clearly. Endeavour should be made to make the result attributable to one or the other of the factors involved. But it is very difficult in the field of social sciences as the real life situations tend to be complex due to the influence of a host of interacting variables. In such a situation conclusions should honestly reflect what is happening including the confusion in reaching a clear decision to attribute the effect to any one cause. The best method is to try to control as many factors as possible and to let any one or more factors as the case may be.
A basic evaluation design to which almost all other study designs are traceable is to means of comparing one variable with another while all other factors are considered equal, or at least kept under some kind of control.
The design of the study should indicate data gathering techniques to be used e.g. use of regular operation reports, field reports, field surveys, tutor views, test etc. in an experimental design, the status of control by group and the experimental group, before and after the treatment should also be given. It should indicate the group to be studies and how the sample was chosen.

The diagram above shows a particular target population selected for study and a sample taken form that population. The factors which might influence the results are equally distributed among the two groups. Usually some kind of tests is administered to see that the two groups were similar at the beginning. If there are some differences, at least they are known and can be accounted for at the end.

The one group (experimental) receives “treatment” or programme input and the other does not. The measurements applied at the beginning are applied again after the “treatment” has taken place to produce effect. Then three more comparisons are made:

(i) The experimental group is compared with itself before and after “treatment”.
(ii) The control group is compared with itself before and after the “non-treatment” period.
(iii) The main comparison is, in fact, a comparison of (i) and (ii) above.

3.1 Criteria for Designing the Study

Accurate designing of an evaluation study is very important from the project’s point of view. A good design provides precise direction to the activities to be under taken during the evaluation period and thus helps achieve the objectives.

A good design starts with such questions as:

(i) Why to take up this study?
(ii) What is to be learnt?
(iii) How is the study to be done?
(iv) When is the study to be done?
(v) Who are going to provide information?

Answers to these questions help to formulate suitable design of study which will ensure that the outcomes will be real and relevant.

(a) Criteria

Evaluation’s main purpose is to assist management in its decision making responsibilities. Therefore, the designing should meet the following criteria:

(i) Objectivity
Evaluation activity should minimize the chances of personal / subjective opinion. It should be as factual as possible.

(ii) Timelines
As the evaluation results are needed to make decisions regarding improvement, change, modification, expansion or reduction of the project activity, therefore, they should be made available to management on time.

(iii) Applicability
The results of the evaluation should be operationally useful and applicable. They should be conclusive and recommend certain action.
(iv) **Communicability**
The results should not be vague and ambiguous. They should be amenable to translation from academic language or techniques into a form readily understood by those who will use them.

(vi) **Validity**
The design of an evaluation study should adhere to principles that assure the reliability of data to be collected during the evaluation process.

(vi) **Scope or Depth**
The evaluation should measure not only progress of quality of performance in a project, but also seriously question the premises on which the entire project is based.

### 3.2 Distinctive Features of an Evaluation Study

(a) **Formulation and Negotiation**

Usually an education project in a developing country is a joint responsibility of the host government and some external sponsoring agency. This external agency is more keen to know the results of its funding than the local government. Before undertaking the evaluation programme, all parties should have a clear mutual understanding of what is to be done and how is to be done. They should also decide the objectives of the study so as to be specific in their efforts.

In formulation of design the following points need attention:

(i) The objectives of the evaluation programme should be specified as precisely as possible.
(ii) The clientele, relevant decision makers and users of the evaluation results should be identified. Their information needs and expectations should also be delineated in advance, so that the evaluation work may not miss these requirements. Evaluation team should also identify areas of special public interest in the programme.
(iii) Type of evaluation required for the programme should be identified. The evaluator should also specify the range of activity to be undertaken during the evaluation process.
(iv) Estimated cost of the proposed evaluation should be prepared. This should be based on sound accounting principles.
(v) An agreement should be reached at in the beginning that the undertaken evaluation activity would produce sufficient data to justify the resource input.
(vi) Feasibility of evaluation programme should be estimated either informally or through formal evaluability assessment.
(vii) Restrictions, if any, on access to data and results from the evaluation should be clearly established and agreed to.
(viii) Potential conflict of interest should identify. Steps should be taken to avoid compromise or forge the evaluation process and results.
(ix) Accountability for the technical and financial management of evaluation should be clearly defined.
(x) All agreements regarding the evaluation process should be specified in writing. They should include schedule, obligation and involvement of all formal parties to the evaluation along with their specific roles to be played in the process.

(xi) Evaluation should not accept obligations that exceed person’s professional qualifications or the resources available for the process.

3.3 **Structure and Design**

(i) For all kinds of evaluation, a clear design or approach should be specified. It should be appropriate for drawing conclusions and inferences.

(ii) If sampling is to be used, the detail of sampling procedure (choice of sample, method of selection, time frame etc) should be described with justification based on the analysis of requirements of the evaluation.

(iii) The measurement methods and instruments should be specified along with their reliability and validity of application.

(iv) It should be ensured that the best and most appropriate procedures and instruments have been used.

(v) The necessary cooperation of staff, instructions to be evaluated, members of the community, as well as those directly involved in the process of evaluation, should be planned.

3.4 **Data Collection and Preparation**

(i) A data collection and preparation plan should be developed in advance of data collection.

(ii) Evaluation staff should be selected, trained and supervised to ensure consistency, impartiality and better performance.

(iii) The validity and reliability of data collection instruments and procedures should be verified under the prevailing circumstances.

(iv) The data collection and preparation procedures should provide safeguards so that the findings and reports are not distorted by any biases of data collectors.

(v) Data collection activities should be conducted with minimum disruption to the programme under study.

(vi) Data should be handled and sorted in such a way that release of information to unauthorized persons is prevented.

(vii) Documentation regarding the source, method of collection, circumstance of collection and processes of preparation for each item of data should be arranged.

3.5 **Data Analysis and Interpretation**

(i) The analysis procedure should match with the general purposes of the evaluation, design of the study and data collection procedures.

(ii) All analysis procedures along with their underlying assumptions and limitations should be described clearly and the reasons for choosing the procedures should also be explained.

(iii) Justification should be provided that the best and the most appropriate analysis procedures have been applied.
(iv) Adequate documentation should be made for possible replication of analysis.
(v) In quantitative comparisons, tests of statistical significance should be applied and indicated in interpretations.
(vi) Findings of the study should be reported in such a way that a clear distinction is made in objectives, findings, opinions, judgments and speculations.

3.6 Communication and Disclosure

Good communication is essential for any evaluation effort. Particularly, good communication seems necessary to clarify the nature of the programme and expectations from the evaluation. It needs to be clarified that communication is not to be equated with the final report. All information that flows out of evaluation channels including preparatory, intermediate and final reports, and written and oral messages all are included in it. Care should be taken that the report meets the established standards as stated below:
(i) Findings should be presented clearly, completely and fairly.
(ii) Findings should be organized in a logical manner and stated in a language which is easily understandable by the users.
(iii) Recommendations should be clearly related to the findings.
(iv) Findings and recommendations should be presented in a framework that indicates their relative importance.
(v) Limitations of evaluation study caused by constraints of time, resources, data availability should be stated. The report should include suggestions regarding issued and questions needing further study.
(vi) The report should indicate method of deriving findings and conclusions.
(vii) Persons, groups and organization, who contributed to the evaluation activity, should receive necessary feedback according to their jobs and responsibilities.
(viii) Officials authorized to release the evaluation data should be specified.
(ix) Documentation of the base-data should be arranged.

3.7 Utilization

As already indicated in earlier chapters, the basic reason behind an evaluation effort is a functional one. The results / achievements or failures are needed for communication to the users. Better utilization can be guaranteed if necessary attention is paid to information needs of the potential users of results throughout all phases of evaluation.

To encourage responsiveness to evaluation results, some necessary considerations are given below:
(i) Evaluation results should be made available to appropriate users before relevant decisions are made.
(ii) Evaluators should be cautious to prevent misinterpretation and misuse of evaluation results.
(iii) The evaluator should bring to the notice of decision makers and other relevant authorities / agencies any suspected side-effects of evaluation process.
Activities

Please procure documents related to the implementation of “Special Primary Education Project” and work out an evaluation plan for communication to the Ministry of Education and the sponsoring agency.

3.8 Self-Assessment Question-II

Q. 1 What important questions are to be answered while designing an evaluation study?
Q. 2 What important criteria are to be observed in developing a good design of evaluation?
Q. 3 Please justify the need of an evaluation programme of a project.
Q. 4 Specify measures to be taken while analyzing the data and interpreting the results of evaluation study.

4. THE METHODOLOGY OF EVALUATION

You have already studied about the design of an evaluation study and necessary measures to be taken to assure effective implementation of findings and recommendations. Now, in this chapter, we are discussing the methodology of an evaluation process. The aim here is to help the evaluator select his own analytical tools, when dealing with a given project.

As the evaluator considers the project in its entirety, therefore, it involves a study of the different variable which shaped its design and influenced its implementation. The following will thus be examined in succession:

(i) Checking the relevance of the project.
(ii) Converting vague objectives into operational terms.
(iii) Identifying performance indicators.
(iv) Evaluation of project outputs.

4.1 Checking the Relevance of the Project

It does not imply any prior assumption that it is unrealistic. Because sound evaluation requires that the origin of the project, be examined. The evaluator has to follow the footsteps of the planner or the team which prepared the project. He should examine the national and sectoral development situation at the time of the Project’s birth and formulate a simple operational statement of the problem originally faced by the designing team (after all the purpose of a project is to solve a specific problem). Care must be taken to avoid unnecessary explanatory statements which have a tendency to obscure the true nature of the problem.

Once the problem has been state explicitly and clearly, analyse its nature, causes and implications as appeared to the authorities when the project was designed.

Review various alternative strategies or different entry points into the existing system in order to change the situation.

Compare relative merits of all proposed strategies in the light of:

(i) Probable capital and recurrent cost.
(ii) Completing government priorities.
(iii) Planning constraints.
(v) Probabilities of implementation and ultimate impact.

Identify the real reasons for selecting the project and compare them with the previous analysis.

4.2 Identifying Performance Indicators

The performance indicators are important because they contribute most to reducing the subjectivity of an evaluation report. The first place to look for performance indication which will highlight the intended outputs of the project under evaluation is the list of objectives themselves and of course, in the project work plan. The more common ones fall into the following categories:

(i) Nature of the output – trained or specialized personnel, school building, or material etc.
(ii) Specific functions or tasks to be performed.
(iii) Target group specifying-age cohort, level of education or training, geographical distribution.
(iv) Specific skills.
(v) Physical context – rural areas, urban slums, ministry etc.
(vi) Conditions under which the output is expected to perform – full time, part time, on request.
(vii) Quantitative targets e.g. 500 “output” items a year.
(viii) Qualitative targets as student’s achievement scores corresponding to a national norm as matriculation, or making use of certain advance teaching methods.
(ix) Programme or management decision making methods to carry out certain tasks.
(x) Scheduled activities listed in the work plan

To illustrate how one locates performance indicators, two examples have been given below; one of development objectives, the other of immediate objectives.

(a) Development Objectives

A countrywide network of community education centers providing formal and nonformal education and training facilities for young people and adults living in rural area.

After a probing analysis of the above objectives, at least, the following indicators can be identified:

(i) Nature of the output: Community education centers
(ii) Specific functions: Education and training.
(iii) Target group: Young people and adults.
(iv) Physical context: Rural areas of the country.

(b) Immediate Objectives

Collaboration with the Institute of Education in developing a rural based primary curriculum, with optional components emphasizing learning requirements in urban area to permit adaptation to the context.
The following performance indicators can be identified:

(i) Nature of the output: Curriculum
(ii) Specific functions: Content for rural primary schools.
(iii) Target group: Rural children in the primary school, with optional components that can be inserted in urban schools curriculum to meet the needs of the city child.
(iv) Decision making method: collaboration with the Institute of Education.

The plan of operation is also a source of indicators. Among the more obvious is the schedule governing both the dates of arrival of the various inputs and the dates of activities in which they are to be used. In the above programme, the date of completing the work of curriculum development can be a good performance indicator.

4.3 Selected Output Indicators

(a) Education
   Number of classrooms built
   Number of graduate of teachers training colleges
   Number of course completer assigned to appropriate positions
   Percent literate adults in population
   Percent children able to pass standard reading test
   Enrollment ratio

(b) Family planning
   Number of homes visited by F.P. personnel
   Number of training courses given
   Number of trainees graduated
   Number of research projects completed
   Number of new acceptors, etc
   (Please develop indicators for crop production, manpower development, tree plantation, water supply schemes etc.)

5. EVALUATION OF PROJECT OUTPUTS

5.1 General Comments
If the assignments explained in previous pages have been properly carried out, the evaluator is now in possession of a list of operational objectives, together with a whole set of appropriate performance indicators and accordingly, he can analyse the project outputs. It is at this stage of the evaluation that the framework provided by systems analysis will prove most useful. An evaluation model of systems approaches along with an evaluation design is given below:
5.2 Outputs

(a) Quantitative Aspects
Virtually all projects have outputs, which can be analysed from quantitative or, more generally mathematical standpoint; typical examples are:

(i) Outputs which can be numerically quantified: Number of students entering and / or graduating from an educational institution or system; examination pass rates; dropout rates; cost of training per student (kind – costs) and per degree; proportion of total time devoted to each subject in the curricula etc.

(ii) Outputs which can be rank ordered: Classification of output on the basis of their relative importance to various social sectors, or through a period of time, or to sectors of the population (geographical, age cohort etc)

(iii) Outputs which can be said either to exits or not to exist; e.g. terminate school buildings or school textbooks etc.

(b) Qualitative Aspects
(i) When it is essential to evaluate the qualitative aspect like the profile of a teacher after training, of a pupil on completion of a pilot programme or of an adult after a literacy course, it is generally possible to process by mean so of questions which can be answered by means of simple ‘yes’ or ‘no’.
(ii) To assess quality, particularly where training is concerned, the evaluator is obliged to use direct measure (e.g. learner’s behaviour) and observational techniques in order to achieve the necessary degree of specificity. He should use a representative sample, as large as time and circumstances allow him, so that his conclusion may be regarded as reliable by outside observers.

(iii) The easiest way to reach a large sample in a short period of time is through the use of a written questions.

(iv) Direct observations (e.g. classroom visit), discussions with person, scheduled interviews with a limited sample are alternative methods. The more sophisticated the observation is, the more it is concentrated on small groups or individuals, though it takes longer time.

(iv) The one useful variation is to combine the questionnaire techniques with intensive method (direct observation, interviews). Here, it should be noted that no evaluation can be considered methodologically sound without the use of control group and, therefore, the evaluator should make a reasonable effort to introduce some method of “controlling” his observations by using a sample from an untreated group.

5.3 Impact
The impact of a project means the quality of a given project output. The outcomes of the evaluation of a project output give sufficient information about the impact of a project performance. If an evaluator thinks that information gathered up to this time is not sufficient to know clearly what the impact of the project has been, it is advisable that he should again watch/observe/examine as the case may be, the output of the project, in respect of change in number of passes, level of achievement or social status etc.

5.4 Utilization
The utilization refers to the use of a project output. While it is difficult to establish with certainty whether the output has or has not an impact, it is on the other hand generally possible to ascertain whether and to what extent it has been used. It is relatively easy to determine whether:

(i) The graduates of a higher teacher training college, established by a recently completed project, have been recruited.

(ii) The research studies carried out by the project are circulated and assimilated by their intended readers and whether they have been used as substantive input etc.

6. A CHECKLIST FOR PLANNING AN EVALUATION STUDY

6.1 A Checklist
(a) Objectives
What is the study (not project) objective?
Does the study have a potential for providing new information?
Will the final results be important or significant for the project or programme?
(b) **Methods**
Are the techniques, instruments or modes of inquiry appropriate to the study design?
Are there sampling problems?
If interviewing or opinion survey techniques are to be used, have the questions been reviewed?
Will the methods gather sufficient and effective data in terms of the goals of the study?

(c) **Data Processing**
Is there a clearly conceived plan for the analysis?
Have the statistician been consulted regarding the methods to be used?
Are the analytical procedures likely to produce meaningful statements?

(d) **Analysis and Interpretations**
Has wide variety of potential findings been considered?
Does the design of the study permit clearly stated generalization?
(i) **Costs**
Is cost for the evaluation study reasonable?
Are there luxury or unnecessary items on the budget?
Are the total costs proportionate to the importance and scope of study?
(ii) **General**
Will the study answer the questions is set out to answer?
Will it produce explicit and usable results?
If it is not completed, will there be some value?
6.2 **Self–Assessment Question**

Q. 1 Why is evaluation necessary for a sound and objective decision making process?

Q. 2 What measure would you like to propose for an objective evaluation study?

Q. 3 What are the main features of a basic evaluation study design?

Q. 4 Enumerate and explain necessary steps of evaluation methodology.

Q. 5 What criteria are to be observed while designing utilization of results, communication and data analysis?

Q. 6 Develop an evaluation plan for the “Mosque-School Project”.

7. **BIBLIOGRAPHY**


PC-V FORM

GOVERNMENT OF PAKISTAN
PLANNING COMMISSION

PROFORMA FOR DEVELOPMENT PROJECTS

(ANNUAL PERFORMANCE REPORT AFTER COMPLETION OF PROJECT)
Government of Pakistan
Planning Commission

To be furnished by 31st July of each years for 5 years after completion of Project indicating Projects operational results during the last financial year.

1. Name of the Project:

2. Objectives & scope of project as per approved PC-I and state as to what extent the objectives have been met:

3. Planned and actual recurring cost of the project, with details:

4. Planned & actual manpower employed:

5. Planned and actual physical output of the project:

6. Planned and actual income of the project:

7. Planned and actual benefits to the economy:

8. Planned and actual social benefits:

9. Planned and actual cost per unit produced/sold:

10. Marketing mechanism:

11. Arrangement for maintenance of building & equipment.

12. Whether output targets as envisaged in the PC-I have been achieved. If not, provide reasons:

13. Lessons learned during the year in:
   o Operation
   o Maintenance
   o Marketing
   o Management

14. Any change in project management during the year:

15. Suggestions to improve projects performance:
1. **Name of the Project:**
   Indicate name of the project.

2. **Objective & scope of the project:**
   Indicate objectives and scope of the project as stated in the approved PC-I. It may also be indicated that up to what extent the objectives of the project have been met.

3. **Planned & actual recurring cost:**
   Provide planned (as per PC-I) and actual recurring cost of the project along with details for the financial year under report.

4. **Planned & actual manpower employed:**
   Provide category-wise details of manpower actually employed for the operation of the project as compared to proposed in the PC-I.

5. **Planned & actual physical output:**
   Provide output of the project as given in the PC-I for the year under report and compare it with actual output of the project.

6. **Planned & actual income of the project:**
   Provide income of the project as indicated in the PC-I for the year under report along with assumptions and compare it with the actuals for the year.

7. **Benefits to the economy:**
   Provide quantifiable planned & actual benefits to the economy for the year under report.

8. **Planned & actual social benefits:**
   Provide social benefits to the target group as given in the PC-I, compare with the year under report and state to what extent the social benefits have been achieved.
9. **Planned & actual cost per unit produced/sold:**
   Provide cost per unit produced and sold at the weighted cost of capital of the project.

10. **Market mechanism:**
    Indicate how the output of the project is being marketed. In case it differs from the PC-I, the details may be provided.

11. **Maintenance of building & equipment:**
    Provide arrangements made for the maintenance of building & equipment during the last financial year. It may also be indicated whether annual maintenance of building & equipment was carried out in the last financial year.

12. **Output targets:**
    Indicate whether output targets as given in the PC-I for the year under report have been met. In case of variation, give reasons.

13. **Lessons learned:**
    Provide lessons learned during the year under report
    i. Operation
    ii. Marketing
    iii. Management.

14. **Change in project management:**
    In case of any change in the senior management of the project, the details alongwith justification be provided.

15. **Suggestions to improve project performance:**
    Based on the experience gained during last financial year, suggest measures to improve the projects performance.
Unit–6

SCHOOL MAPPING

Written by: Dr. A. R. Saghir
Revised by: Ms. Tahira Bibi
# CONTENTS

<table>
<thead>
<tr>
<th></th>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Introduction</strong> School Mapping</td>
<td>134</td>
</tr>
<tr>
<td>1.1</td>
<td>Meanings and Nature</td>
<td>136</td>
</tr>
<tr>
<td>1.2</td>
<td>Significance of School Mapping</td>
<td>137</td>
</tr>
<tr>
<td>1.3</td>
<td>Scope of School Mapping</td>
<td>137</td>
</tr>
<tr>
<td>1.4</td>
<td>Objectives Served by School Mapping</td>
<td>138</td>
</tr>
<tr>
<td>1.5</td>
<td>Characteristics of School Mapping</td>
<td>139</td>
</tr>
<tr>
<td>2</td>
<td><strong>Analyzing Problems Connected with School Mapping</strong></td>
<td>141</td>
</tr>
<tr>
<td>2.1</td>
<td>Factors to be considered while Undertaking School Mapping</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Level-Type-Wise Problems of Education and School Mapping</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>‘When’ and ‘How’ of School Mapping</td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Steps in School Mapping</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Reports by IIEP, Paris</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>The Catchment Area</strong></td>
<td>144</td>
</tr>
<tr>
<td>3.1</td>
<td>What is the Meaning of this Term?</td>
<td>144</td>
</tr>
<tr>
<td>3.2</td>
<td>The Catchment Area, Theoretical Presentation</td>
<td>144</td>
</tr>
<tr>
<td>4</td>
<td><strong>Standardization</strong></td>
<td>145</td>
</tr>
<tr>
<td>5</td>
<td><strong>Application of some Management Techniques to School Mapping</strong></td>
<td>146</td>
</tr>
<tr>
<td>6</td>
<td><strong>Self-Assessment Questions</strong></td>
<td>147</td>
</tr>
<tr>
<td>7</td>
<td><strong>Bibliography</strong></td>
<td>147</td>
</tr>
</tbody>
</table>
OBJECTIVES OF THE UNIT

Having intensively studies this unit, you should be able to:

1. Comprehend and describe the concept of school mapping.
2. Relate the significance of school mapping in educational planning.
3. Analyze the type-level-wise problems of education connected with school mapping.
4. Got down the different steps involved in undertaking school mapping.
5. Define and appreciate the concepts of:
   (i) Catchment area, and
   (ii) Standardization
6. Identify and apply some management techniques in school mapping.
1. **INTRODUCTION SCHOOL MAPPING**

No systems of education, however, new or unique it may, represent a complete breakaway with or a departure from what already existed prior to that. The system existing before the introduction of a new one forms the basis on which the subsequent edifice of a new one maybe raised. The previous systems includes in it a certain type of structure; several types of educational institutions having some equipment and facilities etc; personnel having a very wide variety of knowledge, skills, experiences; certain rules an deregulations; and lastly, a policy making and administrative structure. There may be a difference in the level of development of different systems but each one of the, in one way or the other, does possess the features. The figures pertaining to these aspects at the time of start provide the baseline data in respect of all these things which help the planner to start this activity.

Before an educational planner can take any start for the development of education in future, he should invariably pose certain basic questions to himself and see answers to them. These questions are as under:

i. What are the existing school facilities?

ii. How far are these facilities being utilized

iii. How to ensure their best use?

iv. How would the new educational facilities be distributed, if any?

As it is clear from the above questions, the exercise to answer to them would involve a series of activities aiming at the process of:

i. Stocktaking, and

ii. Diagnosis of the whole situation which we may call diagnostic stocktaking.

So the whole lot of activities involved in the entire process of diagnostic stocktaking is known as “Educational Mapping.”

Before we proceed ahead with our discussion on school mapping, let us take up, in brief, the difference between “Educational Mapping” and “School Mapping”. Leaving aside the apparent difference between these two terms, you would quite agree with the writer of these lines that the ultimate objective of both of them is obviously to facilitate the cause of promotion of education in the area. School mapping as we would shortly see is; The dynamic process of identifying logically and systematically the sites where educational facilities provided in the plan are to be located. As educational facilities have been synonymous with schools, the term has been rather narrowly conceived as school mapping. So since the last decade, educational planners are engaging din widening the concept of school mapping is one of educational mapping.” Educational mapping is generally used in a wider sense as compared to school mapping. According to the Ministry of Education and Culture of Philippines (3:19:20) “While school mapping has been an exercise in locating primary and secondary schools (and perhaps, also colleges and universities), educational mapping encompasses all kinds of facilities for all forms, types and levels of education.

To identify facilities which each community or geographical area would need is the main function of educational mapping. It is a process of find answers to the following questions with respect to either a community or a geographical area.
(a) What are the existing facilities which can be utilized to provide the requisite teaching learning situations?

(b) What other facilities are needed?

(c) Where will these new facilities be physically located?

i. A catalogue of educational needs (or learning needs) of the society as a whole.

ii. An inventory of available educational facilities.

iii. A listing of facilities which are unutilized or under-utilized.

iv. A set of guidelines as to how the available facilities can be reorganized by redistribution of either the facilities themselves or their users.

v. A list of new facilities to be provided where they can be utilized to the highest advantage.

The style for presenting these outcomes of the investigation in a manner that they can be easily understood and readily used in decision making is a map (in the case of school mapping) or atlas (i.e. series of related maps, in the case of educational mapping).

Hence, the use of the term mapping in both case.

The process of investigation is the same for school mapping. The main difference is that we concentrate in narrower objectives and aim at identifying locations for the construction of schools / classrooms / laboratories / workshops etc. evaluation of use-efficiency, reorganization and redistribution of facilities and maximization of use continue to be the net outcomes of school mapping.

Educational mapping follows the same style and techniques as does school mapping. We seek solutions to the same problems that we listed for school mapping. However, instead of identifying needs only in the form of schools and facilities connected them, we work on all forms of teaching learning situations to suit the conditions of the given community or area. The needs relate not only to the school age population but also to out of school youth and adults, and the facilities we seek have to be obtained from all sectors of national life. Vocational training facilities for trainees in functional literacy, on the job apprenticeship program for the youth, mass media for adult education and such other facilities for various elements of a lifelong educational process are to be identified and located. The task of education mapping is, therefore, more complex than that of school mapping.

The difference between educational mapping and school mapping, discussed above, is obviously more academic than procedural in nature except that the former has a wider scope of application as compared to the latter. As mentioned above, both of the above exercises follow the same methodology and aim, with variations, of course, on the ‘education’ or ‘schooling’ of the people living in the area. In the literature the terms ‘education’ or ‘schooling’ are both used synonymously. So for the purposes of our discussion in the following pages of the unit we will not maintain any difference between educational mapping and school mapping. The term “school mapping” will be constructed to include the both.
1.1 Meanings and Nature

The term school mapping which educational planners and managers come across in literature on education planning and management is quite a comprehensive one.

“There are still many, even among educationists and educational administrators, who quite misunderstand the term school mapping. There are many who think it is simply a matter of taking a large scale map and putting on it the right kind of conventional signs to know where the various types of educational institutions are located or getting a sort of photograph of the existing regional or national school network that can be brought up to date by additions or deletion (3.19).

According to Jacques Hallak, school mapping is “part and parcel of the educational planning process and as a result, one of its essential functions is to help realize the targets set out in the plan or plan” 2.13

To quote another UNESCO source:

School mapping is a good management technique which can be used for more effective day to day educational administration as well as for providing guidelines for an educational plan for the future.

The school map is a means of presenting visually and geographically all data related to educational planning and control, and which can be usefully presented in map form.

It is not necessarily a single documents. It can and probably should be rather an atlas than a single map.

It would be better to speak of school mapping as a dynamic process than to say simply school map which is a static thing. The map itself has to be used as a tool for a planning process (4:125).

The reason for preferring to use the term school mapping to that of just ‘school mapping’ is crystal clear. As time passes on, phenomena like population dynamics and other socioeconomic changes make the exercise of school mapping highly imperative so as to identify, diagnose, reshuffle and reorganize the whole network of educational facilities to suit the changing needs and requirements of the masses. Understood in this time sense, the exercise, therefore, comes out to be an ongoing activity capitalizing upon the results of the previous attempt and determining some new ways and means and strategies for the purpose. Hence the use of the term ‘school mapping’ instead of school map.

In recent years this phase is identified by the term “school-mapping”. It is an activity as indicated by the gerund “mapping” and not to be confused with “school map. The original term (“carte scolaire” in French) and the concept has been widely used in French-and Spanish-speaking countries (Villanueva, 1999).

School Mapping is the dynamic process of identifying logically and systematically the communities and sites where educational facilities provided in the plan are to be located. As educational facilities have been synonymous with schools, the terms have been rather narrowly conceived as school-mapping (Singhal, 2004). So, during the last decade, educational planners are engaged in widening the concept of school-mapping to one of the educational mapping. This does not mean that one concept eliminates the other. For all practical purposes, school-mapping and educational mapping will remain distinct activities each with its own utility value, purpose and direction. The process of
investigation for school-mapping for the school-mapping is the same as for educational mapping and its final result is manifold (Psacharopoulos, 2001).

1. it will produce a catalogue of educational needs (or learning needs) of the society as a whole;
2. it will produce an inventory of available educational facilities;
3. it will show which of the facilities are utilized or underutilized;
4. it will provide guidelines as to how the available facilities can be recognized by redistribution of either the facilities themselves or their users; and
5. it will enable the new facilities to be provided where they can be utilized to the highest advantage.

But the main difference is that often narrow objectives and aims are concentrated at identifying location for the construction of school/classrooms/laboratories etc. Evaluation of use-efficiency, reorganization and redistribution of facilities and maximization of use continue to be the next outcome of the school-mapping exercise (Welch, 2000)

1.2 Significance of School Mapping

School mapping occupies an immense significance in educational planning and management for the following reasons:-

i. However efficient and skilful an educational planner may be, he must have at hand the basic information about the overall functioning of the education system throughout the country or the area under his jurisdiction. School mapping provides to him this and many other types of information and data with regard to present state of affairs in respect of education in the country. School mapping provides him the requisite information about the number of schools and their location, enrollment of students, number of teachers, administrative units and a host of other such things. This information serves as the point wherefrom he can take a start and go ahead with his planning process.

ii. Through school mapping, one comes to know the educational needs of different areas and judge the adequacy of the presently available facilities in light thereof.

iii. Having judged the adequacy or otherwise of educational facilities available in the area, the educational planner can strike a balance between the available and the required facilities which, in turn, guide his future course of the action like costing, procurement and other allied activities.

1.3 Scope of School Mapping

With the recent development in non-formal education in areas such as literacy programs, post-literacy courses, vocations training and adult education, school mapping should cover not only the distribution of formal educational facilities but also the non-formal educational facilities.

The process of school mapping covers the following specific areas for expansion and improvement of facilities:

1. Rationalization of Existing Facilities:
   a) shifting, closure or amalgamation of institutions;
b) optimum utilization of teaching and non-teaching staff;
c) Optimum utilization of buildings, equipment’s, furniture, etc.

2. **Provision of New or Additional Facilities:**
   a) Opening of new schools or upgrading of existing ones;
   b) Providing additional teaching and non-teaching staff;
   c) Providing new or additional buildings, furniture and equipment in institutions.

Thus, school mapping has the double function of securing greater equality of education opportunities and at the same time of rationalizing the use of existing facilities in an effort to optimize the limited material and manpower resources.

### 1.4 Objective Served by School Mapping

One of the UNESCO sources (4:125-126) enumerates the objectives that may be served by school mapping as follows which further highlight the significance of the processes:

i. To analyze the educational situation (of the whole country or of chosen regions) as the ‘geographical’ level as opposed to an overall aggregate of data.

ii. To help plan the development of educational facilities on the basis of:
   - Demographic situation and trends.
   - Economic and social development.
   - Suitability of school locations, sizes, types and conditions etc.

iii. To adjust methodically the national goals to the unequal situation of particular provinces or regions of the country.

iv. To serve as a focal point for the gathering of a great amount on information usually dispersed among different services, thus becoming a very useful help for other planning and administrative units.

v. To allow a better utilization of scarce resources according to very realistic estimates of costs and benefits in each particular zone.

Significance of school mapping may be further judged from the following four points described by Hallak (2:13-14). According to him, “the school map is part and parcel of the educational planning process and, as a result one of its essential functions is to help realize the targets set out in the plan or plans. Of these targets the best known, and those most universally acknowledged, are the following:

(a) Giving all children of school age a basic education and extending teaching beyond the end of the period of compulsory education within the limits of resources available and the country’s economic and social requirements. This being so, it should be possible with the help of the school map to organize educational supply in such a way as to meet the requirement set out in the plan.

(b) Providing for ‘equality of educational opportunity’. This target may be interpreted in diverse way but in so far as concerns the school map, the object is to achieve:

(i) A geographical leveling out of the conditions of supply through the creation of equal intake capacities and an equitable distribution of human material and financial resources over the various areas, and

138
(ii) Equal social opportunity for, and access to schooling through active measures encouraging children to go to school (e.g. setting up a school transport service, canteens and boarding establishments) and opposing segregation of the sort where certain schools are attended by certain groups on a race of creed basis.

(c) Making systems more effective by improving the ratio between costs and performance. When the school map is being drawn up the task will be to ensure the utilization rates of premises, equipment staff and the length of time go to the optimum level bearing in mind pedagogic, administrative and political limitations. The idea is to overcome the short sighted view of the school as an isolated and unconnected with the world outside by integrating the school map with a broader map of collective and regional development services. Like the hospital and the post office the school forms part of a body of services to be distributed geographically in a consistent manner and in such a way that the working of external economic factors results in the most effective possible use of resources or schooling.

(d) Reforming structures, curricula and methods: The role of the school map is vital in any attempt to reform education system. The failures of reform programmes brought in certain countries have been largely due to the lack of a school map. However highly developed a school system may be, when a reform programme is brought in, there is a stock of schools with their specific features and their own characteristics reflecting in one way or another structures, curricula and method. A school map should make it possible to determine, how schools may be reconverted and premises re-allocated geographically so as to adjust supply to the education system’s new characteristics as laid down in the reform programme. The experience of France provides a good illustration of the way in which the school can be used in this connection. In 1959, a study was begun on an educational reform programme. This was adopted in 1963. The two main ideas behind it were to raise the school leaving age to 16 and bring in a single type of first-cycle school, the college d’enseignement seconnaire. As a result, it became necessary to restructure existing schools, including the lycee and the college d’enseignement general, and to increase the number of pupil-places to provide room for all children between 11 and 15. As it become necessary to invest very large amounts in school building sand to take on the conversion and building of several thousand schools, the Ministry of Education could no longer make do with the empirical methods which had prevailed up until that devised and introduced, with rules covering as many points as possible. It is here that we must look for the origin of the school map.

1.5 Characteristics of School Mapping

Major characteristics of school mapping may be described as follows:-

(i) School mapping is a comprehensive activity which takes into account the entire area. The term ‘area’ here refers to a specified geographical region which maybe the country, a province, district, tehsil etc. for example we may undertake school mapping in the whole of Pakistan, or nay of the provinces District Education Officers may also do so in their districts. Anyway, it has to be a definite,
identifiable and specified area the whole of which has to be converted in it. We cannot undertake the activity in certain parts of the area leaving the rest of it aside and claim that school mapping has been carried to in the area.

(ii) School mapping covers the total education system of the area. In other words, it takes into account the formal system of education, non-formal system of education and:
- The size of pupil (usually laid down by the regulations) working together (multi grade class).
- Other particular limitations or flexibility, arising from the use of new technology e.g. television, radio etc.

(i) The Geographical Factor: This involves looking into possibilities for children to get to the school.
- On foot or by personnel means of transport (distance involved; existence of roads)
- By using existing passenger service.
- By setting up specialized transport facilities.
It is expected that whosoever looks into the working of these factors will be well acquainted with the localities of pupils homes.

(ii) The Economy Factor: This means an examination of the lowest financial cost that will lead to cutting out:
- Schools that are underutilized.
- Schools with actually big enrollment.

(iii) The Political Factor: Ideas on how the school and its catchment area should be organized may have to be looked into from political angle e.g. the wish for the civic and cultural unification of the various races inhabiting a country by means of a system of secondary boarding schools for children from all part of the country.

(iv) The Administrative Factor: In fixing the boundaries of catchment area and deciding where schools are to be located, it is difficult to ignore completely the boundaries of existing administrative areas, such as those of districts, tehsil etc. for example, in Pakistan, particularly Punjab, the administrative boundaries of the areas under the Assistant Education officers exactly coincide with those of the Thanas (police stations). It may nonetheless occur that administrative boundaries do not coincide with those of the desirable catchment area. The political activity of locally elected people may hamper the taking of purely rational decisions.

(v) The Manpower Factor: This may refer to the relation between the region’s requirement on the matter of employment and the map of specialized courses in vocational and technical schools. In this connection, the work on the school map covers not only the setting up of vocational and technical schools in the various parts of the region but also continues adaptation of the special courses they offer to the requirements arising (3:20-21).
2.2 Level Type-Wise Problems of Education and School Mapping

As we have already noted, school mapping is a very comprehensive undertaking which supports to cover the entire system of education in the area under study. (refer to section on Characteristics of School Mapping). Nevertheless, it has to take into account the inherent characteristics peculiar to each level and type of education. A brief account of the same is as follows:

i. **Primary Education**: In our country, the main characteristics associated with this stage are:
   (a) Boosting number of school age children: approximately three million of them begin added to our population every year.
   (b) High rate of dropout i.e. about 50% of them leave school without completing primary education.
   (c) Uneven distribution of students in schools.

Keeping in view these characteristics, school mapping will have to be carried out so as to:
   (a) Provide adequate number of schools in different parts of the country to meet growing educational needs of the people.
   (b) Take steps to reduce dropout and also make some other arrangements for the possible dropout.
   (c) Reorganize the educational facilities in view of at scattered population.

ii. **Secondary Education**: Here, the main characteristics of special concern to school mapping:
   (a) Extremely low rate of participation in Pakistan for boys in general and girls (especially in rural areas in particular.
   (b) Diversification of subjects: For school mapping purposes you should try to provide the facilities for secondary education so as to increase the participation rate of boys in general and rural girls in particular. Facilities provided in the schools should also encourage the diversification of subjects offered at secondary level.

iii. **Tertiary Education**: At tertiary level, the planners and administrators are mostly concerned with technical and vocational aspects of education. From school mapping view point, one has to keep in mind the following things.
   (a) Technical and vocational requirements of the area.
   (b) Procurement of necessary equipments etc in education institutions.
   (c) The feeding area i.e. the catchment area.

For example, recently in Pakistan the pace of industrialization in the suburban of certain big cities has resulted in highly diversified needs and requirements of the area. Take the example of ABAD (Agency for Barani i.e. ramified Area Development). The ABAD undertakes some rudimentary survey, though not school mapping in the strict sense of their term, of the target area to determine the technical and vocational needs and
identifies the area wherefrom people would be coming to enroll in its vocational institutions and then in light thereof centers.

As for the decision to locate institutions of higher learning, the Planning Service, Ministry of Education of Philippines (3:22) holds that “consideration must be given to the boosting effect they can have on the economy of a region”. The recently adopted dispersal policy which enjoins upon institutions of higher learning to establish their physical facilities outside Metro Manila to decongest its student population reflects the same approach.

2.3 When and How of School Mapping

School mapping is an important step in educational planning aiming at the realization of certain objectives already discussed in section 1.3 of this unit. Now the question arises as to what level should an educational planner undertake this important activity. Actually speaking school mapping is an activity that should be undertaken at grassroots level. In other words, it means that when we go by the educational needs and requirements of the people living in the bottom to the top. We may say that educational needs of the people get accumulated at village / city, district and provincial levels and finally we have the entire picture of the country. There is, however, one basic assumption underlying this exercise that the agency undertaking school mapping has enough resources at its disposal and it can easily hear the expenditure involved. Unless the agency or the government is in a position to meet the big amount required, there is no sense in having school mapping simply for the sake of having it.

There is, however, little scope of school mapping in a country wherein planning is done at the central level, usually irrespective of the multifarious needs of people living in different parts of country and decisions are communicated downward and imposed upon the implementing agencies simply to carry them out. Here, little concern is shown to the educational needs of each and every part of the country and decisions are taken mainly keeping in view the amounts of resources that can be made available to implement the priority decision taken at the top level.

In Pakistan, we are always facing financial constraint. So here, we adopt the second procedure i.e. formulate the plans at federal / provincial levels remaining, of course, within the expected resources and then transmit the details of the plans to the regions / areas where the authorities deem the fit to be executed and then the educational facilities are provided accordingly.

2.4 Steps in School Mapping

Recall the points discussed while comparing and contesting the concepts of educational mapping and school mapping. Steps involved in school mapping are exactly the same as those in educational mapping. Suppose you are going to undertake the school mapping of Pakistan or of your own province / region or district. You will have to follow certain logical steps, a brief account of which is given as under. These points are the concise form of what UNESCO Regional Office, Bangkok suggests in this regard:

i. Defining minimum learning needs of the people in respect of:
   (a) Basic education: e.g., what is the total number and percentage of literates as well as illiterates (sex and age wise)
   (b) The amount of knowledge about cultural background and skills.
(c) Social education of citizens.
(d) Nutrition education.
(e) Scientific outlook

ii. Determining as to who (clienteles categories) needs what (content selection) and where (the area) and how (methods, techniques and strategies) the same is to be provided.

iii. Assessing the resources needed in terms of 3 M’s i.e. Men, Money and Material required. For example, what would be the number of teachers and other personnel, the amount of money and their things required if you aspire to implement the exercise in Pakistan?

iv. Determining the presently existing inputs e.g. the number of personnel already working and the institutions and the funds available.

v. Striking a balance between the required resources (as at No.iii) and the available ones at No. iv)

vi. Determining the ‘where’ of the facilities in view of:
(a) Population concentration
(b) Number of clientele likely to be served.
(c) Communication facilities available to people living in the area of school mapping.
(d) Other socio-cultural and geographical factors.

vii. Preparing map with rationale for decisions made and priorities determined i.e. showing on the map as to why you have decided to open or close what number schools in which parts and what contents have to be imparted through what techniques etc.

viii. Follow up of the whole exercise to determine as to what extent the reallocation of educational facilities has been successful or otherwise.

2.5 Report by IIEP, Paris

One of the reports published by the IIEP, Paris (4:126-127) has enumerated the steps involved in school mapping as below:

i. Recruiting and eventually training the staff like cartographers, coders, investigators, statisticians, cost analysis etc.

ii. Establishing this team as a section of the Educational Planning Service (or of the National Planning Board).

iii. Organizing the work of the team, and in particular the collection and collation of data (geographical and statistical)

iv. Identifying the areas of operation.

v. Proceeding actually to collect and tabulate the data, both from existing documentation and from exploratory visits to the field. This will include estimating the information, when data do not exist at all, perhaps through the Delphos Technique.

vi. Determining the code to be used for the actual mapping.

vii. Drawing the demographic and school map of the chosen areas.

viii. Analysing the situation as shown in the map mainly according to a study of costs and benefits.
ix. Using the findings of this analysis, either for the preparation of an educational
development plan for the area concerned, or for the possible modification of
existing plans if this is shown to be desirable, considering in any case the feasibility
in respect of resources and the efficiency of the use of such resources.

x. Using the map for proper, implementation and control of the plan.

xi. Projecting the map to the future to serve as a guideline of the development of a
perspective plan.

xii. As in every other planning exercise, evaluating the achievements to make
corrections to start new planning process in the context of our discussion on
school mapping reference maybe made here to the concepts of Catchment Area and
Standardization as set out by Hallak Jacques (2:49-151).

3. THE CATCHMENT AREA

3.1 What is the Meaning of This Term?

A catchment is the geographical area served by a school. In order to delineate it,
pinpoint pupils homes and outline the smallest area covering all of them. Two possible
extreme cases may be mentioned, namely:
(a) The case of single school for the entire community providing very specialized
training, for instance, repair and servicing of watches. Such a school’s catchment
area will be the whole of the community; and
(b) The case of a nursery and primary school, for instance for the children of workers
maintaining a hydro-electric power station dam. Here, the catchment area embraces
the dwelling houses in the neighbourhood of the dam.

In either case, the catchment area is defined by what is expected of the school,
namely ‘serving such and such category of people’ or providing special training.

As a rule, however, the vast majority of schools are supposed to be fulfilling the
same function, for instance, providing basic education for children from 6 to 12. In this
instance, the school’s catchment area is defined by the maximum acceptable distance a
child can travel between home and school, the size of the school, the density of school-
age population; this is particularly true of rural areas.

3.2 The Catchment Area: Theoretical Presentation

(a) A priority, the catchment area of a school to be reached on foot is a circle whose
radius is the maximum distance from home to school. The number of children for
schooling may be calculated by means of the formula:

\[ E = 4^2 \times \frac{22}{7} \times d \]

Where ‘d’ is school age population density and r is the radius of the circle, i.e. the
maximum distance children can travel.

When the school map for County Sligo in Ireland was being elaborated, it was
suggested that a rule be used to estimate the theoretical catchment area of a school
in the light of the distance to be covered, and population density. For example, with
a maximum distance of 3 kms, to be covered, the catchment area will be 28.3 sq
km; if the density of school age population is 3 inhabitants per square kilometer the school’s enrollment will be maximum of 85 pupils.

(b) However, circular catchment areas have one major disadvantage. For network of schools there are two possible alternatives, as figure -1 shows:

The results is either that some area fall outside any catchment diagram, or that some areas belong to more than one catchment scheme. This is why it is theoretically more satisfactory to have catchment areas in the shape of hexagonal cells, as illustrated in figure–2.

In this case, the following equation gives the numbers of enrollment: $E = 2.598x r^2 x d$. The expression $2.598x r^2$ gives the area of an hexagonal cell. The figure of $E = 2.598$ is a constant whereas stands for the distance of the outermost line from the centre.

4. STANDARDIZATION

Any standardization involves the definition of maximum, maximum and optimum size of schools. Obviously, then three stands are influenced by a number of factors depending on whether primary, middle or secondary schools (in case of Pakistan) are considered. In Pakistan, for example socio-cultural setup, educational needs and problems of the people, geographical features of the area under school mapping and a
host of other such factors are of crucial significance for determining the minimum, maximum and optimum size of schools at each level.

5. APPLICATION OF SOME MANAGEMENT TECHNIQUES TO SCHOOL MAPPING

Since school mapping a very comprehensive undertaking, comprises numerous activities. At times, during the whole process, some of the management techniques may be successfully utilized in it. Some of these management techniques are briefly described below:

1. **The Delphi Technique**

   The Delphi Technique may be used in making decisions at different stages of school mapping. Basically, the technique stands for referring a problem to the experts of obtaining their opinion on it. In this way, the educational planner may use the technique for determining priorities among objectives and also to provide some basic information where no data exist (4:128). In Pakistan, sometimes the baseline data required by the educational planner are altogether missing or, if at all available, are not reliable. Here, the Delphi Technique may be used to procure the necessary information so as to provide the planner with relatively reliable information and then determine his line of action in light thereof.

2. **PERT**

   PERT is the acronym of Programme Evaluation and Review Technique. As you would read in detail about this technique in unit No.8 of this course, it is used for the purpose of project implementation. School mapping, which consists of numerous activities, has got large scope of the application of PERT in it. Sequencing and timing of different independent, dependent and dummy activities involved in the whole process of school mapping may be successfully done through the application of PERT.

   The IIEP Seminar Report (4:128) enumerated some more techniques in this connection:

   1. **Theory of location**, including programming techniques to identify areas of operation and to determine location of schools.
   2. **Operational research techniques**: that may be used at different stages of school mapping.
   3. **Cost – benefit analysis**: this technique may be used to select one from amongst the competing alternatives in order to achieve a particular objective.
   4. **Systems analysis and design techniques**: These are of particular relevance to the school mapping process, since the amp is both an information system and a dynamic tool for decision making.

   Refer to the Unit on “Techniques of Management” and identify some more techniques which may be applied in school mapping.
6. SELF-ASSESSMENT QUESTIONS

Q. 1 What do you mean by school mapping? How far do you think it is synonymous with educational mapping?

Q. 2 Bring out the significance of school mapping in the light of objectives served by it. Give examples in support of your answer.

Q. 3 Enumerate and discuss the major factors to be considered while analyzing problem of school mapping.

Q. 4 Discuss in detail the level and type wise problems associated with school mapping.

Q. 5 Suppose you are going to undertake school mapping your province. What steps would you follow for the purpose? Explain.

Q. 6 Write short notes on the following.
   i. Theological nature of school mapping.
   ii. Application of PERT in school mapping.
   iii. Catchment area.
   iv. Standardization in school mapping.

7. BIBLIOGRAPHY


DECISION-MAKING

Written by: Dr. Zulkaif Ahmad
Reviewed by: Ms. Tahira Bibi
OBJECTIVES

When you have intensively gone through this unit, you should be able to:

1. Describe and discuss clearly the concept, nature, process and various steps of rational decision-making.

2. Express verbally and in writing the various elements of and considerations and steps involved in educational decision-making.

3. Appraise, appreciate and use in practical situation where necessary, the techniques of decision-making.

4. Identify, indicate and deal with various pressure groups effectively while making educational decisions.

5. Discuss and describe in detail with examples, the methods of arriving at rational educational decision.
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>THE ART OF DECISION–MAKING</td>
<td>153</td>
</tr>
<tr>
<td>1.1</td>
<td>Introduction</td>
<td>153</td>
</tr>
<tr>
<td>1.2</td>
<td>The complexity of decision making in Education</td>
<td>154</td>
</tr>
<tr>
<td>1.3</td>
<td>The nature of decision</td>
<td>155</td>
</tr>
<tr>
<td>1.4</td>
<td>Cultural context of decision making</td>
<td>155</td>
</tr>
<tr>
<td>1.5</td>
<td>Levels of decision making</td>
<td>156</td>
</tr>
<tr>
<td>1.6</td>
<td>Changing pattern of decision making</td>
<td>157</td>
</tr>
<tr>
<td>2.</td>
<td>ELEMENTS OF DECISION–MAKING</td>
<td>158</td>
</tr>
<tr>
<td>2.1</td>
<td>Goals</td>
<td>158</td>
</tr>
<tr>
<td>2.2</td>
<td>Information</td>
<td>158</td>
</tr>
<tr>
<td>2.3</td>
<td>Diagnosis</td>
<td>158</td>
</tr>
<tr>
<td>2.4</td>
<td>Alternatives</td>
<td>159</td>
</tr>
<tr>
<td>2.5</td>
<td>State of Nature</td>
<td>159</td>
</tr>
<tr>
<td>2.6</td>
<td>Methodology</td>
<td>159</td>
</tr>
<tr>
<td>2.7</td>
<td>Values</td>
<td>159</td>
</tr>
<tr>
<td>2.8</td>
<td>Decision – makers’ personal philosophy</td>
<td>159</td>
</tr>
<tr>
<td>3.</td>
<td>ELEMENTS OF DECISION–MAKING</td>
<td>160</td>
</tr>
<tr>
<td>3.1</td>
<td>Recognition of the problem</td>
<td>161</td>
</tr>
<tr>
<td>3.2</td>
<td>Diagnosis and definition</td>
<td>161</td>
</tr>
<tr>
<td>3.3</td>
<td>Collection and analysis of informational inputs</td>
<td>161</td>
</tr>
<tr>
<td>3.4</td>
<td>Development of alternatives</td>
<td>161</td>
</tr>
<tr>
<td>3.5</td>
<td>Evaluation of alternatives</td>
<td>161</td>
</tr>
<tr>
<td>3.6</td>
<td>Making the decision or choosing the best alternative</td>
<td>162</td>
</tr>
<tr>
<td>3.7</td>
<td>Implementing the chosen course of action</td>
<td>162</td>
</tr>
<tr>
<td>4.</td>
<td>TECHNIQUES OF DECISION–MAKING</td>
<td>162</td>
</tr>
<tr>
<td>4.1</td>
<td>Judgmental techniques</td>
<td>162</td>
</tr>
<tr>
<td>4.2</td>
<td>Principles of Management</td>
<td>163</td>
</tr>
</tbody>
</table>
4.3 Behavioral techniques .................................................. 163
4.4 Heuristic approaches .................................................. 163
4.5 Economic and financial techniques ............................. 164
4.6 Model approach to decision-making in educational planning and administration .................................................. 164

5. RATIONALITY IN DECISION–MAKING ...................... 166
5.1 Pressure group and decision making ......................... 167
5.2 Objectives of the pressure groups ............................. 167
5.3 Suggestions for decision makers ................................. 169

6. SELF–ASSESSMENT QUESTIONS ............................. 169

7. BIBLIOGRAPHY ......................................................... 170
1. THE ART OF DECISION-MAKING

1.1 Introduction
Decision making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Making a decision implies that there are alternative choices to be considered, and in such a case we want not only to identify as many of these alternatives as possible but to choose the one that best fits with our goals, objectives, desires, values, and so on. (Harris 1980)

Decision is a straightforward mental process. Every human being makes decisions during every moment he is awake. He makes choice from among several alternatives. Every choice is explicitly or implicitly designed to achieve an objective. At a junction, one meets on journey, one turns right or left according to the destination one has in mind. Such decision like picking the correct road is based on knowledge acquired either through past experience or from information provided by road maps and other travelers. Sometimes, the decision is made on the sport by consulting an expert or somebody living in the area. In conducting an organization towards a predetermined goal, the manager makes similar choices in identically similar circumstances.

In general decision making process can be divided into the following steps: Define the problem, Determine requirements, Establish goals, Identify alternatives, Define criteria, Select a decision making tool, Evaluate alternatives against criteria and Validate solutions against problem statement.

![Figure 1. Placement of Decision Making in Management Function](image)
1.2 The Complexity of Decision-Making in Education

Decision arises out of many different conditions. Some decisions are prompted by the performance of daily routine work; some come from need to change or to make more effective the objectives or strategies, other decisions may be generated by unexpected occurrences. Dale has classified decisions under five heading. (6:8):

1. Decisions which are of routine nature.
2. Decisions which affect several areas.
3. Decision where uncertainty is a factor.
4. Decision where uncertainty is a dominant factor.
5. Decision about policies and strategies.

An example of each type is as follows:

A school administrator's decision to adjust the periods of a teacher on leave is a routine work. Selection of visual aids for classroom use affects several areas. Having an untested assistant with little experience, involves a limited risk and finally transferring school teachers who are thought to be unfit by the influential members of the community may bring massive uncertainties.

Among the myriads of decisions which an educational manager makes every day, there are a few which are more important than others because they have the characteristic of guiding later decisions as well as decisions made by others. These big decisions which provide a framework within which others are to make their decisions are known as policies. For example: A parent applies to the manager for exemption of his child from school fees due to his low income and the manager allows it. The manager, while allowing it, gives instruction that children of all parents under similar circumstances be exempted likewise.

i. Managers in the higher echelons of administration are conscious of the fact that their decisions could become policies. So when they have no intention of allowing them to be policies they would specify clearly that the particular decision shall only be a single shot decision. They expressions commonly in use are it shall, however, not be a precedent" and "it shall be without prejudice".

ii. Policies are very important for the working of an organization. They make the action of each member of an organization in a given set of circumstances more predictable to other members. They guide action and enable decisions made by different members of an organization to follow a common path. In view of these uses of policies, decisions which give rise to policies are made with greater care and circumspection. Strategies are also a kind of decisions or, sometimes, a better of related decisions designed to meet unpredictable contingencies or resistances and obstructions. A strategy, like a policy governs or guides decisions made by different members of an organization. A minister of education, determined to get qualified teachers to contribute to rural education, may decide that promotion to higher grades requires a certain number of years of service in a rural school. He calls it "My strategy to counteract the resistance of qualified teachers who refuse to work outside urban areas. A strategy has a time dimension. It can remain operative only under circumstances under which it was designed. When the circumstances
change, the strategy too has to be modified to meet the new contingencies, resistances or obstructions. A particular contingency under which strategies are designed is when the available information is too fragmentary and insufficient to formulate a policy.

Monahan has categorized the educational decisions of substance and decisions of procedure. Decisions of substance are primarily concerned with the aims, purposes, content, emphases and tendencies of education programmes. Where and what school buildings should be constructed and how should they be equipped? Who should be the administrators and other staff members? What should be the content and organization of the curriculum? These and other many similar decisions are the decisions of substance. The decisions of procedure are concerned with the modes of operation which will bring about prior basis of substance, for example, how the work of the teachers has to be supervised and monitored and how the institutional activities have to be made more effective and decisions reliable procedure. It can safely be said that some decisions are concerned with ends other are concerned with means.

1.3 The Nature of Decisions

There is general, scholarly that a decision concludes and terminates a process (21:22). However the end point of one process can be viewed as the starting point of another. Everybody decides about his affairs. Which school to attend, what profession to choose, what job to take, whom to marry, these are the decisions which everybody makes in his life. Every one wishes to make good decisions. What is good decision is a major concern of ethics because without defining good, one cannot conceive of a good decision. Many philosophers have maintained (21:23) that goodness is a relative term and generally it implies what a particular person wants, chooses and wishes to achieve. Goodness of a decision would be measured by the extent to which its result satisfied the decision maker's objectives. This also solves the problem why decision must be made. It is obvious that the decision maker wants to achieve some purposes, goals and objectives or there is some state of affairs which he wishes to achieve. The decision maker will choose an action which he believes will help him most to obtain his objectives. This action will take the form of some kind of utilization of his own efforts and the resources at his disposal.

This is also a hard fact that we do not always achieve our objectives despite our best efforts. The reason is obvious that certain factors that affect the achievement of objectives are either outside the control of decision makers or the course of action has been wrongly chosen. These factors which relate to why, when, what and how are the problems of decision - making which must he dealt with and finally any administrator is assessed or evaluated in terms of his success in making good decisions.

1.4 Cultural Context of Decision—Making

As a matter of fact, decisions do not occur as discrete and isolated activities. As Fisher and Thomas put it, "They are the part of the warp and woof of life and we lift one out here and there in an artificial manner for the purpose of analysis" (8:19). This lifting out and such momentary isolation is necessary for, we cannot look at all the factors at the same time in a thorough and systematic fashion.
1.5 Levels of Decision-Making

Even a cursory glance at the organization of our school system will reveal its hierarchical structure. From the classroom teacher up to, through headmaster, supervisor, director and curriculum designer and other higher officers and personnel in administration; a general observer often assumes that educators below the level of the headmaster or supervisor do not make decisions but merely carry out the decisions fashioned above and handed down. This belief is mistaken. In the words of Fisher and Thomas (8:19), "It is more accurate to say that the decisions made at the higher levels of educational hierarchy have consequences broader in scope than those made at lower levels." Nevertheless, though narrower in scope the decisions made by individuals, teachers or headmasters are bound to be very important. Decisions are made on the following levels:

(i) Decision Made by Teachers:  
In such decisions the teaching methodology, individual attention, and classroom activities will be included. The teacher decides: how and when he should conduct the classroom activities, how he should present the contents of the curriculum, and to whom, and how much attention.

(ii) Decision Made by Headmasters:  
The local administrator and supervisor is the headmaster. He has to decide: where, when and whom to recommend for certain work etc., how he/she should assign duties, and what and from whom he/she should expect? These and many other decisions are to be made by the headmasters

(iii) Decision Made by the Department of Higher Administrators:  
The level of decisions includes like controlling, appointing, and other educational matters regarding policy making etc.

(iv) Individual and Group Decisions:  
Some educational decisions are made by individuals and others by groups. Further analysis also reveals that the individual educator or administrator, whatever position he/she occupies, makes decisions while functioning within policies fashioned by group. Chester I. Bernard distinguishes between personal and organizational decisions. According to him, organizational decisions can be delegated to others whereas personal decisions are not (2:180). For example the decisions on construction, scope and sequence of the curriculum, provisions of equipment, and preparation of textbooks are generally made by groups of educators. Matters relational to lesson planning and checking student assignments are to be taken up by the individual teachers.

(iii) Politicians and Educational Decisions:  
The main concern of the politicians in education is the political background to the policy of the educational system. Any educational organization can be viewed in the light of the policy provided by the public authorities and the law of the country. The efficiency of the educational administration is influenced by the policies of the
political powers, and the fact is that politicians tend to take decisions according to their own interpretations. The views of the politicians are influenced by the pressure groups.

According to the Gaymond F. Lyons "It is the great problem in low income countries that the interests of the politicians and those of educations usually do not coincide" (19). We may, therefore, bear in mind that the extent to which both the politicians and educationists agree and show conformity in objectives, may be the level of healthy trends in educational decision.

**Figure 3. Decision Making Pressures**

1.6 Changing Pattern of Decision–Making

History provides documented evidence that, in the past, in almost, all phases of human activities, decisions, in the form of order, were handed down from a selected few to the many. The imperial command was long the single modus operandi of societies. The accepted mode of behavior for the bulk of workers in any field was to carry out decisions made by the elites in an unquestioning manner and often without any understanding of the reason for, or probable consequences of, their actions.

For varied and complex reasons, this pattern has been more or less modified. Three of the most important reasons for this change away from autocratic decisions have been:

(i) The significant rise in the general level of education of the population throughout the world.

(ii) The tremendous impact of the industrial development and subsequent rise in technology.
(iii) Defusing ideas which include a healthy respect for the intelligence and educability of common man.

The changes in the direction of more democratic decision-making are supported by the mounting evidence supplied by the research in social physiology that speaks in favour of including workers in the making of decisions concerning their work. "When decisions are arrived at through cooperative efforts, the productivity rises, morale improves and the workers, become strongly committed to the purpose of the organization" (8:11). Similarly, when teachers have had a hand in determining educational procedures and curricular goals, their morale is higher and they work much harder and with more enthusiasm. By contract "in an authoritarian setting, where decisions are handed down in a hierarchic structure and where communication is limited and occurs mainly in one direction, morale and productivity tend to be low and the accumulated resentment and hostility find outlets in various undesirable ways" (10:781-85).

2. **ELEMENTS OF DECISION-MAKING**

To achieve the goals systematically and effectively, it is desirable to develop a clear understanding of the elements affecting the decision. In a very general sense decision making covers almost every phase of human activity. If one reaches far enough he could bring societal cultural, economic and political variables in decision-making. The possible selection of these approaches is as under (14:108-111).

2.1 **Goals**

Goals determination is an important process and requires a careful consideration. Goals to be served include personal, institutional, professional and national etc. since personal goals often conflict with those of the others, therefore, what successful decision-making process calls is the unity of objectives or harmony of goals. When conflicts exist, then the matter of emphasis and the philosophy of the society comes in. but in all situations the decision maker must have a clear understanding of the goals and objectives.

2.2 **Information**

Information is the basic element in decision-making. The quality and the quantity of information both play an important role. Wrong and incomplete information may mislead, while sound and complete information ensures and leads to correct decision. The information should always be reviewed carefully and confirmed before integrating into decision-making process.

2.3 **Diagnosis**

Diagnosis or problem recognition is an important element. It brings with what Newman called "Felt Difficulty" or a 'sense of trouble' (21:216) and then attempts to separate causes from symptoms. Problem recognition tries to identify the relative norms and use these deviations to detect the strategic factors influencing the decision. It is a common human failing to proceed to reach solution without really defining the problem.
But it must be remembered that a systematic and effective diagnosis will play definitely an important role.

2.4 Alternatives

The fourth basic element of the decision process is creation and structuring of alternative solutions. Creating alternatives brings up the concept of individual and group creativity. Thought an individual's inherent creativity probably cannot be improved, recent studies have shown that better utilization of existing levels of creativity can be obtained (14:109). Methods and techniques can be developed, which can be structured by simple rational listing of the factors influencing the problem.

2.5 State of Nature

States of nature have a basic influence on the decision process. Decisions are made under conditions of complete certainty, complete uncertainty or some point between these two boundaries. Techniques and methods used to solve problems differ according to where the problem lies or appears to lie on the certainty uncertainty continuum. The techniques chosen to solve the problem are often derived from the way in which it relates these uncertainty boundaries. When an outcome has been preordained and is known in advance, as when an organization has inside information, than the decision and the resource employed to implement it may be quite different than those committed in a situation where the decision maker has a very sketchy knowledge of future and other influencing factors.

2.6 Methodology

The nature of the methods used to order alternatives has as much variety as those used to diagnose alternate courses of action. Simple intuitive judgment falls at one end of the range, while the highly sophisticated techniques appear at the other end. The details and variety of the methods and techniques is to be discussed in the next section of this unit.

2.7 Values

Values of both individuals and organizations are the basic element entering the decision process. Individuals hold values are influenced directly by the system and goals of the organizations in which the individuals function. Governmental welfare agencies obviously have different values guiding their activities from the profit centered organization and industrial concerns. Value systems are critical in decision making since their mediating the basic decision rule or rules which result in a particular solution to the immediate problem. Thus, value system enters directly into the ordering recognition and choice of alternatives.

2.8 Decision - Maker's Personal Philosophy

Outlook of life or what has been popularly called one's philosophy of life also enters the picture. People approach life problems with different sets of assumptions. One may assume as Rousseau did, that "people are inherently good or bad" (8:9). One may look upon the learning process as painful and unpleasant or as an exciting and pleasant
adventure. One may formulate different sets of assumptions concerning any significant aspect of life. Similarly administrators and decision makers act upon different assumptions in the analysis and solution of their problems:

3. **STEPS IN DECISION–MAKING**

Though the subject matter of decision-making constantly changes the goals, the values, methods and diagnostic techniques alter very little. Preferences do shift, of course, but the other factors move slowly enough. Decision making can be visualized as a series of steps taken within an existing set of goals, values and methods etc. In the effort to clarify the process of decision-making, a number of leading authorities have represented it in simple steps. Peter F. Draker, for example lists the steps. Newman, Warren and Herbert Simon discuss them in more detail. All of them attempt to systematize decision making into a logical series of steps much like those in the scientific methods. Following their discussions and conclusions, decision making can be represented as a seven - steps process.

**Figure 2. The Decision-Making Process**
3.1 Recognition of the Problem/Need for Decision

This stage is not always as simple to execute as it may appear at first glance. Organizations and institutions are often not aware of problems until some unusual or different happening occurs. Problems can exist without being evident to even, apparently well informed executives. The ability to recognize problems before they become crisis gives any operating management an advantage expressed in the saying, "An ounce of prevention is worth a pound of cure". A failure to recognize a felt difficulty can turn it into an actual one.

3.2 Diagnosis and Problem Definition

The stage of problem definition and diagnosis seeks to perceive problems and to state them in concrete terms. The first step is definition. One must ascertain that the right problem is being taken up. The diagnostic stage involves all the possible techniques and devices to help clarify what the problem.

3.3 Clarify Objectives

With such a definition the manager can then develop appropriate decision objective—what the decision is intended to achieve. Clearly this, in part, will depend on the definition phase. A situation which has occurred only today with only student or stakeholder will have very different decision objectives from one which has occurred repeatedly over the last month with a number of customers. The objectives phase is a particularly important one, however, the manager must be clear about what a particular decision, or set of related decisions, is to achieve. Without this clarification the manager will not be in a position the future to determine whether a particular decision that was made effective or not.

3.4 Collection and Analysis of Informational Inputs

Collection and analysis of informational inputs call for a great deal of technical and conceptual skill. The kind of data needed may call for thorough analysis of records and resources. Selectivity is quite important here, for only pertinent data is to be collected. It involves judgment of what information to collect and what sources are best able to supply it.

3.5 Development of Alternatives

There must be some data before the alternatives can be developed. With data in hand the process of developing alternatives first involves creativity and then structuring.

The creative parts of developing means of solution emerge. In this step, the possible blocks and impediments must be perceived. Creativity is, of course, more than just knowledge and ability to overcome the blocks, but this is very important in developing alternatives. Since the number and quality of alternatives depend in large part upon imaginative handling and interpretation of data, creativity ranks high on the list of most wanted qualities in decision-making. Structuring a problem involves the mechanistic handling of critical variables in a scheme that identifies and relates them in a way that allows them to be evaluated effectively. Proper structuring is important because it provides a systematized way of organizing the masses if relatively complex variables
are encountered in all but the simplest decision. Unless some orderly analytical framework is adopted, a good probability exist that one or more critical decision factors may be overlooked.

3.6 Evaluation of Alternatives
The evaluation of alternatives takes over where the structuring ends. Evaluation includes weighing the variables, their states of nature, the total impact of the problem being considered etc. in the means, actually chosen to evaluate decision and the conditions surrounding the decision, knowledge, skill and inclination of the decision maker play a major role. Parkinson (25:32) notes that very small and very large decisions often receive strikingly little attention, the former because of their lack of importance and the latter because of the inability of the decision maker to comprehend their scopes and impact.

3.7 Making the Decision or Choosing the Best Alternative
Parkinson notes that making a decision, as a matter of fact, is a balancing act which requires the individual to balance his personal judgment and values against the results obtained in the formal evaluation of alternatives. The final choice of alternatives involves judgment. This is the outcome of the steps from 1 to 6.

3.8 Implementing the Chosen Course of Action and monitor
Once the decision is made, the implementation comes to the front. Implementation means taking steps to ensure that a course of action is carried out in accordance with the chosen alternatives. Implementation also involves gaining acceptance of the decision from those directly influenced by it and developing controls to see whether the decision is carried out properly. If the decision is not carried out then some follow-up action is needed. Druker says that implementation is a very important step in decision making.

Parkinson notes that making a decision, as a matter of fact, is a balancing act which requires the individual to balance his personal judgment and values against the results obtained in the formal evaluation of alternatives. The final choice of alternatives involves judgment. This is the outcome of the steps from 1 to 6.

In the typical decision-making process this is merely the description of logical steps.

4. TECHNIQUES OF DECISION-MAKING

In view of the magnitudinal development in the behavior and physical sciences, it is not easy to approach any solution of a problem. There are several way and techniques to reach a reasonable decision. Here are some of them. It is not the intention to list all of them but they are chosen approaches considered as representatives rather than all inclusive. The review and discussion indicates how these techniques may be utilized in operational situation.

4.1 Judgment Techniques
Judgment is a time honored methodology and is most useful in making routine decisions or decisions of limited scope but its use is questionable where large commitments are involved or where future is critical. They are necessarily based on past experiences and observations.
Some of the things favoring the judgmental approach are that it is easy to use, it costs very little in terms of time and money and it can be invoked rapidly. On the other hand unless judgment is combined with other techniques, its use tends to be risky. Any methodology whose consistency varies with the user is not capable of giving consistent results. Since high quality decision-making depends upon a large number of high quality decision-makers, few organizations and institutions can be assured that judgmental techniques will generate high quality decisions.

To say that the use of judgment is hazardous is not to say that it should not be used at all. It has no peer in cases where few guidelines exist. General propositions do not decide concert cases. The decisions will finally depend upon the judgment or intuition more subtle than any major premise. It probably does not exclude the use of specific techniques to buttress the judgment but the point is well taken. Even when the best techniques are used, judgment may be the final factor in determining what choice to make how to carry it out. Used alone, it invites risks.

4.2 Principles of Management

Only a few people believe that principles and general rules can provide specific approach to decision-making. But however, the principle, rules and regulations are guidelines of the process of total system: so the rules are roads to decisions. For example, in private educational enterprises the decisions will be based on the framework of their principles and regulations. Many authors like Greenlaw and Richard have listed the rules and principles and an approach to decision making.

4.3 Behavioral Techniques

The use of behavior science techniques in decision-making is an extremely useful approach. Its major contributions are to provide information on and insight into decision making process.

The contribution of behavior science can be summarized best by citing how specific behavioral findings enter into decision-making methodology. One such concept is group decision-making as advocated by Rther P. Blake and Jane S. Mouton in “Group Dynamics. Key to Decision Making”. (3:109). In this word they illustrate that group participation is necessary for decision making. Another example is that behavior science has entered directly into decision process with regard to selection. Psychological tests have in many instances replaced judgment in the selection of applicants. To the extent of making final decisions psychological tests play the role of basic determinant. In all such examples the behavioral techniques are designed to provide insight and information rather than actual analysis and solve the specific problem. With the improvement, anyhow, these techniques are destined to play a more important role in contemporary decision-making process.

4.4 Heuristic Approaches

According to Gore, it is an alternative to rational decision-making. It allows a strategy to be reached when a preferred path is blocked (11:130). In other words, heuristic approach allows decision maker to consider less rational paths. There are three basic problem solving steps in this approach as described by Hutchison (14:126).
The first step classifies the problem and identifies whether it can be solved with a given routine. Assuming no solutions occurs at this point there is then a breakdown of major problem into sub—problems. In the third step again problem solving techniques are applied to sub—problem. If there is no solution to a sub-problem according to routine, then there is continuing break down of large problems into smaller problems and routines are applied until the solution is reached.

4.5 Economic and Financial Techniques

Economic theories and analysis of the situation in their light are very useful in some cases of decision - making. In the study of costs and profits, economists have developed a frame - work which though not always directly applicable to real situation, does provide a means for reviewing the factors hearing upon economically oriented decisions. This approach depends upon three factors: costs, outputs and benefits or profits, and allows those routes which call for maximum benefits specifically the criteria of absolute profit or the rate of return on invested capital.

4.6 Model Approach to Decision - Making in Educational Planning and Administration

As discussed by Hector Correa, (5:206-211) in any educational planning and administration, whether for an institution or for a national system, three basic factors must be considered. They are:

(i) The inputs of education such as teachers, buildings, financial resources etc.
(ii) The demand for education from the school age population or the number of students.
(iii) Outputs of the educational system that determine the educational structure of the population. These are explained in the following figure:

In it, the educational system appears as the combination of teachers, building financial resources and other inputs. Another point is that the inputs and the demand for education are determined outside this system and the educational structure of the people must satisfy the socioeconomic needs. The interaction of these factors determines the decision - making process, administrative role, and evaluation of the educational system. On this premise, two approaches have been discussed by Hector Correa.
In the first approach, one of the three factors mentioned above receive priority and the others must adapt to it. With the characteristics of the priority element and those of the educational system, which are considered fixed, it is possible to estimate what value the other elements must have. For instance, if the number of students is given the priority, the inputs and outputs must adapt to it. Naturally, the estimates might not bear desirable relationship to the inputs that are likely to be available and the education structure of the population needed for socioeconomic development. A symbolic representation of these conditions is expressed in the figure:

This approach is mainly with the assumption that school age population receives priority and is used to estimate the required inputs and outputs of the system. The inputs represented might be in conflict with those available and the outputs with that required. Similar conditions may exit if socioeconomic needs or inputs are given priority.

In any of these cases, conflicts are likely to appear. The advantage of this approach that is simplifies the process of decision - making. They begin at one point; the priority element and proceed to the required. On the other hand, this approach has a very important limitation. It gives no indication of how to solve the problem when the estimated value and those which are available do not coincide. When this occurs, there is very little that can be done systematically. The only possibility is to repeat the decision process with changing assumptions and hoping that eventually agreement will be reached between human and physical resources, needed and available for educational development.

The second approach to decision - making and planning is characterized by the consideration given to the interaction among the different elements of the educational system. This does not means that no factor has priority but rather that its value is determined taking explicitly into consideration the characteristic of the other factors. For instance, the educational structure of the population could have priority. But, however, in this approach this only means that the priority factors will receive all the attention compatible with the characteristics of other factors. The educational structure of the population is not used to determine the inputs and demand for education required; rather these two factors are used to evaluate the educational structure that will be feasible. At this point, the difference between the first approach, lip service is paid to the educational structure of the population because it is said to have priority but inputs and demand for education are used determine the characteristics of the educational structure of the population. However, this impression may not be true because the approach is altogether
different. In this approach, the characteristics of educational system are considered to be variables. Each variable will, give a different value to the output structure.

Now a problem appears. Which of the alternatives available should be chosen? The answer is that the alternative to be chosen is the one that is optimum from the point of view of the decision maker that is the one that satisfies most the needs and goals of the institution or system. The success of this approach depends on the choice problem namely the goals, methods and limitations should be kept in view. The basic assumption in the solution of the decision problem is that the objective sought must be maximized within the limits of the human and physical resources available.

Pay-off Table: A school principal planning the annual prize giving will find PAY OFF TABLE, like the following, very useful to make a sound decision

<table>
<thead>
<tr>
<th>Events and Results</th>
<th>Choices</th>
<th>Too sunny</th>
<th>Fine but cloudy</th>
<th>Rain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor</td>
<td>Positive</td>
<td>Real comfort</td>
<td>all very happy</td>
<td>Disaster</td>
</tr>
<tr>
<td></td>
<td>discomfort</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outdoors under tent</td>
<td>Positive</td>
<td>Comfort but mild regrets</td>
<td>Mild is comfort</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comfort</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mild dis.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoors</td>
<td>Mild discomfort</td>
<td>Mild discomfort but regrets.</td>
<td>Comfort and very happy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Due to heat and congestion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. RATIONALITY IN DECISION-MAKING

The questions of rationality have long preoccupied decision theorists. Why does the decision-maker choose one alternative over another? What is rational choice? Before these questions can be answered, the meaning of rationality must be determined.

Webster's New World Dictionary defines rationality as the quality or condition of being rational, reasonableness or the possessing or using of reasons (32:1179). Nicholas agrees with this view as he says, "The definition stated in dictionary is in actuality an operational description attempting to convey the universal meaning of rationality and reasons" (24:116). It indicates that reason is the foundation of rationality. In other words, human behaviour is considered rational when it is guided by reason and conversely irrational when reasoning is absent. Donald Taylor has coined the term means-end rationality that means if appropriate means are chosen to desired ends, the decision is rational (31:48). Miller and Star have further explained means-end rationality (22:43-44). According to them, "one way to clarify means - end rationality is to attach appropriate qualifying adverbs to the various types of rationality. Thus, rationality can be applied to decisions that maximize given values in a given situation. Subjectively rational might be used if the decision maximized attainment relative to knowledge of the given subject. Consciously, rational might applied to decisions where adjustment of means to ends is a conscious
process. A decision is "deliberately rational to the degree that the adjustment of means to ends has been deliberately sought by the individual or organization. A decision is organizationally rational to the extent that it is aimed at the organizational goals and personally rational if decision is direct to the individual goals.

5.1 Pressure Group and Decision-Making

Pressure groups are groups of human beings identifiable by their like-mindedness and community of interests and their desire to act effectively in modulating the affairs of the society or organizations to which they belong. "Whether ideologically inspired or driven by a selfish motive force, whether appearing as a subtle current of opinion or in the form of mob hysteria, the pressure groups constitute a force to be reckoned in the process of decision-making", is the opinion of an administrator.

Today, it is hard to imagine any system of decision-making in which the element of pressure groups would be wholly excluded. On the other hand, it would be true to say that ever since man learned to make decisions, he has not made one without some kind of pressure operating upon him. This is quite understandable. After all decisions are not made in vacuum they are made for human beings by human beings in a social background with a view to regulate human affairs. If a pastoral society becomes more complex, human awareness improves and the man gets more deeply intertwined with social events around him, the pressure groups then not only get multiplied but also get individually more powerful.

When we talk of pressure groups, it is generally in a derogatory sense although there is no reason why it should necessarily be so. As a matter of fact, they can play a positive role as well as a negative one. For one thing, they can contribute in exposing all the facets of a problem and placing some concrete alternative before the decision-maker.

Decision-maker is not a computer or an automatic machine. Machine has got no sentiments, no greed, fear, sympathy and anticipations etc; while human decision-maker has all of these. But the function, both of them perform, is somewhat identical. Just as a computer must be fed with data before we get a result; the decision-maker must also receive an insight into divergent points of view supplied by the pressure groups before well-rounded decision could be expected.

5.2 Objectives of the Pressure Groups

The pressure groups can have three objectives, which are:

(1) To help the decision-maker in taking a correct decision.
(2) To save the decision-maker from taking a bad decision.
(3) To cause withdrawal of bad decision.

They can also play a negative role and when doing so, there objectives are just converse of what is positive objective. While discussing the objectives of pressure groups, it would be useful to identify some of the pressure groups; it would be useful to identify some of the pressure groups operating in educational situations.
(i) **Pressure groups within the institutions**

They are far more important than outside groups they are strong enough where unity of workers obstruct the course of smooth decision-making. Often they have outside links and without taking them into consideration any decision can be effective.

(ii) **Associations and unions:**

The employees and workers of a department are allowed to form their associations and unions. The objective of these associations is generally to protect the rights of the workers and assure them a fair deal. The interests do not necessarily coincide. Often, there is a friction between the leaders and the decision-makers. In such conditions, the unions are unduly prone to exercising pressure in favor of individuals rather than national goals.

(iii) **Politicians:**

As the representatives of the people, the politicians deserve due respect. However, it is not an uncommon sight to see them visiting administrators for recommending or opposing a teacher, whom they hardly know. When facts are candidly explained to them their vehemence does not subside and they show no readiness to understand the rules, regulations and difficulties of decision-maker and they insist upon their immediate demand. In very few cases, however, it must be stated that where administrators are slack or inattentive, they have saved some persons from injustice and red tapeism and nepotism. On the national level the politics plays a vital role in decision-making. Often, in the presence of vested interests, of strong political groups, many national schemes are reshaped, curtailed and amended or abolished to suit their purposes and personal benefits.

(iv) **Press:**

Press is the voice of the people. The press owned by powerful groups, whether commercial, business, can have a strong influence on decision-making. In societies where press is free and is supported to reflect the feelings of the masses, the impact is really spectacular. In less free societies, the decision-making authorities and the press work side by side even hand in hand. In such a milieu, the press is expected to pave the way for a decision that has already been decided to be taken and afterwards pursue the task of justifying the decision before public.

One can name many other pressure groups operating in educational spheres. Every organization, every section of society has its own set of pressure groups of varying magnitude. The question arises, how should the administrator deal with pressure groups and how can be reconcile the objectives of the administration with those of the pressure groups? These questions are not easy to answer nor is there any formula for grappling with them because each individual case may have a number of variables. However, some suggestions may help the decision-maker in dealing with the situation.
5.3 Suggestion for Decision–Makers
(i) The decision-maker should analyse the problem and try to identify the pressure groups apparent or invisible.
(ii) He should have an open mind and pay due attention to the voice articulated by the pressure groups.
(iii) He should not hesitate to meet the spokesmen of the pressure groups because face to face discussions are far more useful than correspondence.
(iv) He should have an independent source of information to verify the versions of the pressure groups.
(v) Discussions with the spokesmen of the pressure groups should be made with a view to compromise but not necessarily a compromise on principles.
(vi) The decision-maker should choose right time for right decision. Hasty or late decisions often bring disaster.
(vii) He should try to prepare ground for the decision, particularly if it is expected to bring controversy.
(viii) He should have the ability, courage and sound background to explain why the decision has been taken.
(ix) Often, when the pressure groups are involved in decision or taken into confidence before time, they don’t interfere rather they help in its implementation.
(x) The decision-maker must not always resist and refute the opinion of the pressure groups. In case of positive contribution, he must be thankful to them.

6. SELF–ASSESSMENT QUESTIONS
1. What is the difference between decisions, policies and strategies? Explain with examples.
2. What are the various elements and factors which affect the decisions?
3. What steps should be taken to arrive at rational decisions?
4. Review the effectiveness of using various methods and techniques while making educational decision.
5. What is the nature and role of pressure group which in one way or the other influences the educational decisions?
6. How can decision-making in education system of Pakistan be more valid and rational? Give your suggestions.
7. BIBLIOGRAPHY


18. Luce, R. Duncan and Howard Raiffa, Games and Decisions, John Willey and Sons, New York, 1958.


25. Nicholas, N.G., Policy Decisions and Organizations Theory, School of Public Administration, University of South California, Mimographed, 1960.


## CONTENTS

<table>
<thead>
<tr>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>174</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1. INTRODUCTION TO ORGANIZATION</th>
<th>175</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. COMMUNICATION</td>
<td>175</td>
</tr>
<tr>
<td>2.1 Importance of Communication</td>
<td>175</td>
</tr>
<tr>
<td>2.2 Communication Theory</td>
<td>176</td>
</tr>
<tr>
<td>2.3 Channels of Communication</td>
<td>176</td>
</tr>
<tr>
<td>2.4 How Grapevines Work</td>
<td>177</td>
</tr>
<tr>
<td>2.5 Communication Channels</td>
<td>178</td>
</tr>
<tr>
<td>2.6 Communication Media</td>
<td>178</td>
</tr>
<tr>
<td>2.7 Fundament Process of Comm.</td>
<td>180</td>
</tr>
<tr>
<td>2.8 Major Problems in Comm.</td>
<td>181</td>
</tr>
<tr>
<td>3. MOTIVATION</td>
<td>182</td>
</tr>
<tr>
<td>3.1 The Need for Understanding Motivation</td>
<td>182</td>
</tr>
<tr>
<td>3.2 Importance of the Study of Motivation</td>
<td>182</td>
</tr>
<tr>
<td>3.3 Approaches to Understand Human Behavior</td>
<td>183</td>
</tr>
<tr>
<td>3.4 Determinants of Behavior</td>
<td>183</td>
</tr>
<tr>
<td>3.5 Some Important Motives and Their Indicators</td>
<td>184</td>
</tr>
<tr>
<td>3.6 B. Flippo Edwin in Principles of Personnel Management has quoted the following from some Survey studies with regards to employees Wants.</td>
<td>185</td>
</tr>
<tr>
<td>3.7 Incentives for Motivation</td>
<td>186</td>
</tr>
<tr>
<td>4. HUMAN RELATIONS</td>
<td>187</td>
</tr>
<tr>
<td>4.1 Definition of Human Relation</td>
<td>187</td>
</tr>
<tr>
<td>4.2 Importance of Human Relations</td>
<td>188</td>
</tr>
<tr>
<td>4.3 Human Relations in an Educational Organization</td>
<td>188</td>
</tr>
<tr>
<td>4.4 Principles of Human Relations</td>
<td>188</td>
</tr>
<tr>
<td>4.5 Personality Factor in Human Relations</td>
<td>190</td>
</tr>
<tr>
<td>4.6 Limitations of Human Relation</td>
<td>191</td>
</tr>
<tr>
<td>5. SELF-ASSESSMENT QUESTIONS</td>
<td>192</td>
</tr>
<tr>
<td>6. BIBLIOGRAPHY</td>
<td>192</td>
</tr>
</tbody>
</table>
1. INTRODUCTION TO ORGANIZATION

Organization is the process by which people and the tasks they perform are related to each other systematically to help and achieve the enterprise's objectives. It includes dividing up the work (division or labor) among groups and individuals and linking the sub parts together (coordination).

Organization concerns itself equally with the two aspect of:

(i) Division of labor and allotting workloads to individual and groups of individuals.
    (e.g. departments, branches, Units) and.

(ii) Establishing lines of communication, influence and authority among individuals and groups of individuals handling allotted workloads and ensuring the coordination of their activities in relation to the given objectives.

The major factors that contribute to the efficiency to an organization are:

(a) Communication
(b) Motivation
(c) Human Relations

2. COMMUNICATION

"Behaviour that results in an exchange of meaning is communication".

Communication is a dynamic process by which information is exchanged in an organization. Every manager in an organization performs several roles involving transmission of messages. They are continuously communicating decisions from the top to the subordinates. An effectiveness of each message is maximized.

Primarily communication is a purposeful act and as such its success or failure is to be judged in relation to the purpose itself. When we try to convey our thoughts, ideas, intentions, opinions and desires to another person we use a variety of means, such as the spoken words, printed words, graphs and pictorial representation facial expression, bodily movements, gestures, action etc. The purposeful use of all these means is very important in an organization because people act on the basis of communication received by them. There is reasonable evidence that if an organization is effective in its communication, it will be effective overall.

2.1 Importance of Communication

One of the most important elements in the modern organization is a. continuous process of feedback and communication between individuals and organizational sub unit in formulating as well as implementing plans to achieve the objectives. The organization receives a great deal of feedback from its environment. Daily, through the mail, telephone calls, interviews and meetings, the manager receives all kinds of communications which have arisen for a purpose which is to be accomplished. When the administrator/manager plans, organizes his actions and makes decision, he use the communication he received to attain the objectives of the organization. The manager communicates with other
employee on the following occasions, when:
(i) Orders from the top administration have to be passed on to the employees.
(ii) New responsibilities are added to job.
(iii) New decisions have to be passed on.
(iv) Procedures for performing tasks need to be explained.
(v) New goals are set or tasks are changed.
(vi) Incentives are to be communicated.

All the above situations clearly bring out the importance of communication because no manager can go ahead without it.

2.2 Communication Theory
Communication, as a discipline, attempts to study the nature and problems of communication. It involves the study of:
(i) Semantics
(ii) The problems of abstracting
(iii) The symbolic nature of words
(iv) The distortion of reality in language
(v) The confusion of meaning caused by various factors like limitations of language and backgrounds in experience and environment of the persons communicating to each other.

One of the root causes of, almost, all conflicts, and misunderstanding among people is the problem of conveying to another person exactly what one wants to convey.

2.3 Channels of Communication
An important component of communication structure is the channel through which the words and symbols flow between sender and receiver. William F. Gluck says that, "Communication channel is the rout through which a message passes i.e. the chain of personnel the message."

The channels of communication are logically of two types i.e. downward and upward.
(i) Downward Communication
It means to convey organization's orders and view points to subordinates for the following purpose.
(a) Giving specific task direction or job instructions.
(b) Information designed to produce understanding of the task.
(c) Information about rules and regulations of procedures and practices.

(ii) Upward Communication
It means providing feed back to the manager. An upward flow of communication is also necessary if management is to coordinate various activities of the organization. This is necessary to determine if subordinates have understood any information sent downward.
In addition to the formal channel and established order of communication, there are informal channels also. These are usually called the grapevine. The formal channel moves directly down and up the chain of command. The informal channel moves in several directions. The grapevine instead of being discouraged is viewed by management specialist as a very desirable feature in any organization and is called "automatic horizontal communication". Informal communication is regarded more effective than formal communication because of the following reasons:

(a) Expediting decision-making by enabling those who need information to get it from where it is available without going through the hierarchical channels.

(b) Provides a means of pre-testing a decision and improving the accuracy of a decision (visualize a principal using the grapevine to find out possible reactions of teachers and pupils to an intended increase in working hours of the school).

(c) Involving in the decision-making process a larger number of persons than formal channels permit.

(d) Finding quicker and more effective solution to problems by utilizing the inherent speed and flexibility of the informal communication networks.

2.4 How Grapevines Work

Generally, grapevine is a verbal channel. It can become written when covers more than one location. Davis Keith has illustrated four patterns of grapevine. (2)

(i) The single chain

(ii) The probability chain

(iii) The gossip chain

(iv) The cluster chain

The most frequent is the cluster chain. In the cluster 'A' tells to 'B', 'R', and 'F' the message. Only some of these employees pass the message on to 'K' and 'C' and some of these term tell to others. Davis calls this pattern a cluster because each link leads to another cluster of people. Researches support that only a few employees are in a 'liaison' role - those who start the clusters. Most people learn the information but do not spread it. Employees become active on the grapevine when they have news that is fresh and likely to be 'hot'.

Since grapevines are speedy and accurate, managers should think of them as a good communication channel. It is incorrect to try to eliminate their importance. Instead, the manager should learn who the liaison people in the informal network are. He should then give these people the information to be communicated. This is especially necessary when grapevine have been spreading incomplete or inaccurate information.
The manager should realize that the members of an organization bring with them a complex package of roles, expectations, feelings, norms, prejudices, values and so on. To expect them to lay these aside is impossible. However, understanding the fundamental concepts of communication will increase the probability of adequate communication among organizational members. And better communication will always lead to more effective accomplishment or organizational goals. A conservative manager prefers to control the communication channels. Liberal managers utilize both formal and informal channels and encourage communication in all directions.

2.5 Communication Channels
There are three possible channels of communication i.e. Circle, Chain and All Channel. These are presented in a figure:

![Communication Channels Diagram]

The CIRCLE is poor. A manager does not have any position; the group satisfaction is how and structure arises slowly. It is not a preferred pattern of communication.

The CHAIN is preferred by conservative managers. It is fast and accurate, having a strong manager us satisfied with this approach but, not definitely the employees. It is not good for fast changing problems.

The ALL CHANNEL APPROACH is very fast and fairly accurate. No special leader is present and much structure does not develop. Liberal theorists prefer this approach and claim that it is more effective for unstructured and fast changing problems.

2.6 Communication Media
The numbers of possible approaches to communication media are as under:

(i) Nonverbal
We need not to use words to communicate ideas but the sign of cross sends a message, so does an auto horn.

Status symbols are the most frequent application of non-verbal communication. They include large desks and badges of authority. Wearing a suit separates a teacher from the students wearing uniform.

(a) Facial Expression
Eyes tell a story too. Many subordinates learn more by reading their boss's eyes than by listening to what he says. Other facial expressions include forming, raising the eye brown.

(b) Time and Communication (Time Talks)
It is said, "Time Talks". It means how fast we speak, and gestures we use,
may indicate the intensity of our message. Whether we are in time to a meeting may indicate how important we consider the subject to be discussed. For example, pausing during verbal communication allows nonverbal behaviour to reinforce the spoken words.

(c) **Touch and Body Management**

One typical way of communication is the greeting or farewell hand shake. Tapping of the foot or fingers can indicate boredom. How one applauds, indicates degree of enthusiasm. It is clear that nonverbal behaviour is very important part of oral communication. Most unwritten communication is mixture of verbal nonverbal signals. So, managers need to communicate through both verbal and nonverbal media. One has to be very careful in the choice of words and tone of voice to get the meaning across. The difference in communicator's background, experience, education, and upbringing can also cause difficulties in communicating the message or information accurately.

(ii) **Verbal Oral**

This is the most frequent form of communication. Although verbal communication appears to be a simple process but in fact it is a highly complicated one involving encoding and decoding elements. One has to be very careful in the choice of words and tone of voice to get the meaning across. The difference in communicator's background, experience, education and upbringing can also cause difficulties in communicating the message or information accurately. This can be of two types:

(a) Face to Face

(b) By Telephone

(iii) **Telephone**

Telephone is a more difficult medium of communication, a though most of the executives prefer it to written communication. The key point about telephone communication is the use of words, communication speed and tone must compensate for the lack of nonverbal means of communication.

(iv) **Written Communication**

Managers prefer to communicate verbally because verbal communication gets there quicker; skill many forms of written communication are used in business and educational organizations. Examples include reports, memoranda, letters and enterprise newsletters and news magazines. Encoding in writing is a more difficult task and calls for several special skills to write clearly with the least room left for misunderstanding, one has to develop an insight into language usages and the comprehension levels of party for whom the communication is meant. 

**Example:** A principal addressing the school assembly on student discipline is performing an easier function because his audience is his sounding board. He reads faces and accordingly rephrases or paraphrases what he says. He further uses his voice and gestures to clarify, emphasize and sustain interest. He has no such advantage when he drafts a circular on the subject. To get the cold words on paper
to generate meaning, clarity, interest and motivation, a greater mastery over expression is required.

(a) Sending the Message
Communication skills are, undoubtedly, among the most significant qualifications of a manager both for issuing and receiving communication. The first and the most basic among them, is the encoding skill. Encoding skill is the ability to reproduce one's thoughts in oral or written words, drawings, graphs, pictures, gestures, facial expressions, actions etc. Here, the source of communication reduces his message to a code.

(b) Encode Skills
To put a message in a code is to encode, which calls for a repertoire of skills like:

(i) Mastery over language (i.e. sound knowledge of grammar and a large vocabulary with adequate command over the technical words used in the work of the organization).
(ii) Ability to speak and write plainly and directly.
(iii) Grasp of the niceties of expressions and control over style of speaking and writing.
(iv) Phrase the message in such a way as to tape the receiver's needs.

If the communication is orals, there are further requirements such as a being able to:

(a) Pronounce clearly and accurately.
(b) Use the correct diction, inflection.
(c) Make appropriate facial expressions and gestures.

2.7 Fundamental Process of Communication
Ideas must be translated into a set of symbols, which are then transmitted to the second person. The basic elements of communication process recommended by Edwin B. Flippo are as under:

<table>
<thead>
<tr>
<th>Sender</th>
<th>Transmission of Receiver</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Speaker</td>
<td>1. Words</td>
<td>1. Listening</td>
</tr>
<tr>
<td>2. Writing</td>
<td>2. Actions</td>
<td>2. Reading</td>
</tr>
</tbody>
</table>

Communication always takes place between two or more people. If the professor lectures and no one listens or understands, there is no communication. The skill of communication then involves sending through speaking, writing, drawing or action; and receiving through listening, reading or observing. The symbols may be words, actions, pictures or numbers.
Activity:
Please study the model and try to develop new comprehensive model of your own.

2.8 Major Problems in Communication
George S. Ordiorne has described the major problems in communication as under:

(i) Feedback
Good communication requires that the sender has a system whereby he may test the
Completeness, speed and accuracy with which his message has been received. This
is called the feedback system.

(ii) Noise
In any communication system, there is also message or simple noses which enter
the system from outside. These can impede the efficiency of the listener and impair
the effectiveness of communication between the sender and the receiver.

(iii) Interference
In any communication system, there is the chance that deliberate and premeditated
interference with the communication system such as competing messages may
distort, diminish or otherwise impair the efficiency of communication.

(iv) Filters
These are in the form of attitudes, preconceptions, habits and ways of thinking on
the part of the receiver, which means that he screens out certain types of messages.
He has a capacity to filter out anything that does not fit in with his preconceptions.

All these make communication a very serious matter in management. Its importance is
best expressed in these words:
To be a manager is to be a communicator the persons and the functions are
inextricably interwoven.

It is very necessary that organization must maintain an adequate system of
communication. Information, new and even rumors must flow through the system freely.
"Inner Cabinets" of managers acting as custodians of information and decisions, can be
major factor in the growth of aggression in "less privileged" circles leading ultimately to
the development of 'cliques' working against organizational objectives.

Communication does not mean that employees only should know what and what
the manager has decided. It also includes the very significant need for the manager to
know what the employees think about what he does. All administrative action is of no
avail unless members of the enterprise are willing to contribute efforts towards the
fulfillment of their assigned tasks. Each individual must desire to execute his duties
effectively. The role of communication is to intensify this desire.
3. **MOTIVATION**

Motivation may be defined as the discovery and the utilization of the stimuli that would bring the desired behavior in a particular individual. The child who does his homework for fear of being castigated in class, the teacher who comes on time for fear of the principal's rebuke, the principal who replies promptly all letters of his In any case; no one creates or produces quality work when motivated by fear.

Example: The child who does his homework neatly and regularly to enjoy the pleasure of being praised in class, the teacher who works diligently to get. himself recommended for a promotion and the principal who spurs his staff to work harder to see his school topping the list in Board Examination result are all motivated by a reward.

Rewarding is a positive motivation factor and its advantage is that it is anxiety reducing and conducive to innovative work.

### 3.1 The Need for Understanding Motivation

Managers are involved in planning, organization, coordinating, and executing various activities to achieve the organizational goals. Manager is constantly with people. As technician, he looks after the technical aspects; as administrator, he interacts with subordinate staff in the office; the in the field he allocates and supervises the work. Thus, all his interaction with different groups of people influences his administrative behavior in the organization.

In dealing with his staff and managing the human resources, he needs to understand their nature and dynamites. To perform his task efficiently, he should have insight into the questions like:

- Why people behave in the way they behave?
  - (i) What are the significant things people look for in their jobs?
  - (ii) How could the work be designed or human interaction is monitored to provide maximum satisfaction to people and their needs?
  - (iii) How can one understand the motives or needs of a particular employee?
  - (iv) How can a climate be created in the organization where the exploitation of human talents is possible?
  - (v) How can the staff be helped to perform to their maximum?
  - (vi) How to gain commitment?

### 3.2 Importance of the Study of Motivation

- (i) Often, managers forget the important aspect of direction and feel the function is commanding or leading.
- (ii) In democratically oriented organization, what is more effective in achieving goals is motivation rather than ordering people about.
- (iii) In the emerging concept, of management as the means of creating innovation and changes, the task of gating other to accept change becomes fundamental obligation and motivation methodology to accomplish it.
3.3 Approaches to Understand Human Behavior
The manager uses different approaches to know the employer as a person, such as:

(i) From practical experience
Most learn about human behavior from working with other people. During this time, they are constantly observing the behavior of others and certain parts of that experience are retained and become part of the memory of the manager in solving problems and making decision. He may also, if his temperament runs along that line, learn from practical experiment. All of us try different approaches to make other see things our way. If we find that one approach inevitably infuriates another, we stay away from that routine and tackle the situation in another way.

(ii) From Experience of Others
It may be that manager is educated in history, literature, biography and has acquired some keen insights through study of human relations as spelled out in literature. One can acquire keen insights into the minds of workers and other figures found in an environment in novels, plays and poems. Learning by exchange of experience e.g. attending, seminars, lectures, conferences and workshops is most acceptable method of learning for many managers since it provides them with a sense of practicality.

(iii) Scientific Observations
Scientific observations, which apply the methods of natural science to the study of humans, are behavioral sciences. This term covers psychology, anthropology, sociology and psychiatry. The purpose here is to gain knowledge, not to establish value system.

Form these three principal sores of information; the manager acquires, insight, Knowledge, skills and information which he may apply to his work to help him in the discharge of his responsibility in managing.

3.4 Determinants of Behavior
In order to be able to manage the human resources, insight into the causes of behaviors is required. Managers may come across highly devoted and hardworking staff, as well lazy, evasive and superficial employees. At times, he may wonder what to do about the generally less motivated employees. At times, if he does not do anything to reward the well motivated staff, he may lose them. An understanding of what motivated people is required. Psychologists have pointed out a few observations that increase our understanding of human behavior.

(i) Hierarchy of Human Needs
All behavior goals directed. People behave because of their needs to achieve certain things. These goals may deal with psychological needs or higher social needs, Researchers have shown that human beings want things in a certain order or priority.
These are:
(a) **Psychological Needs**  
The very basic demand of human beings is to satisfy his 4 psychological needs such as food, clothing, air, shelter and rest etc. after this other needs arise.
(b) **Safety and Security Needs**  
Human beings want to be secure and safe, i.e. security of job and security of life. Once they have an optimum level of security, they know that they have a continuing job and no problem in near future.
(c) **Love and Belongingness**  
They want affection form fellow beings, often, a few selected once, community organizations unions, professional bodies, etc. to satisfy this need for power and influence over others and need for achievement etc.
(d) **Self Actualization Needs**  
These needs include one's own abilities and potentials and using them to the self actualizing need; thus human motives can be organized in the form of a pyramid as shown below. It helps greatly our conceptualization of human needs.

```
<table>
<thead>
<tr>
<th>Self Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Power Prestige and</td>
</tr>
<tr>
<td>Other Social Need</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Love and belongingness</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Safety and Security Needs</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Physiological and Other Basic Needs</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>
```

*Hierarchy of Human Needs  
(Maslow c theory of human needs)*

Man is never fully satisfied. He generates new wants of raises his expectations regarding old wants as fast as previous desires are met. From a managerial point of view this restlessness in indeed a fortune, because the desire for more satisfactions of some sort is the source of individual motivation.

**3.5 Some Important Motives and Their Indicators**  
Table below, presents a list of important motives relevant to employees behavior
the motive indicators.

<table>
<thead>
<tr>
<th>Motive</th>
<th>Meaning</th>
<th>Behavior Indicators of Motives</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td>Achievement</td>
<td>A concern for excellence                                                                      Person dominated by this motive is generally active, Works hard, takes challenges tasks, derives pleasure from doing difficult things and looks for quality.</td>
</tr>
<tr>
<td>ii.</td>
<td>Affiliation</td>
<td>A concern for establishing affectionate relations with others                                  Persons dominated by this motive want to have close relationship with people and establish emotional relationship with others</td>
</tr>
<tr>
<td>iii.</td>
<td>Power</td>
<td>A desire to gain control over others or to them be superior                                   People seek opportunities for leadership and enjoy seek opportunities to others.</td>
</tr>
<tr>
<td>iv.</td>
<td>Extension</td>
<td>A desire to be helpful to other                                                                People with this motive are good social workers. They are argumentative, talk loudly and other, at time even want to show their strength physically want to show their strength.</td>
</tr>
<tr>
<td>v.</td>
<td>Dependence</td>
<td>Need to consult                                                                               These people always look for directions from others before others, cannot make any independent decisions, taking any decision tack initiative</td>
</tr>
</tbody>
</table>

3.6 B. Flippo Edwwin in Principles of Personnel Management has quoted the following from some survey studies with regards to employees wants:

(i) **Pay:** Although pay cannot alone motivate the whole person yet it helps in satisfying physiological and egoistic needs.

(ii) **Security of Job:** Because of current threats from technological changes, this want is high on the list of priorities for many employees in an organization.

(iii) **Congenial Association:** Management can aid the process of acceptance of an employee by carefully planned and executed induction programmes, provision of means to socialize work, voluntary rewards for suggestions and public recognition through awards.

(iv) **A Meaningful Job:** This is very difficult want to supply, particularly in large organization having mechanically placed assembly lines. But some researchers have indicated the possibility of integrating the need of employees for significant work and the need of the organization for productive and coordinated activity.

(v) **Opportunity to Advance:** Not all employees may want to advance. However, most of the employees like to know that the opportunity is there, they should avail it.
(vi) **Comfortable, Safe and Attractive Working Conditions:** The want for good working condition issues from the security need. Specific attributes such as desks and rugs, constitute symbols of status devoting a hierarchy of importance. Managements may find it difficult to allocate such status symbols.

(vii) **Competed and Fair Leadership:** Good leadership helps to assure that eh organization and its job will continue to exist. It is very frustrating to be subjected personally to a command from an individual who is deemed unworthy and incompetent. Orders from persons who are generally respected do not as much damage to the ego, despite our cultural traditions of equality.

(viii) **Reasonable Orders and Direction:** The order is the official communication of organization requirements. In general, it should be related to the requirements of the situations, capable of being executed, complete but not unnecessarily detailed, clear and concise and given in a manner that stimulated acceptance,

(ix) **A Socially Relevant Organization:** The Trend toward greater social expectation of private organization has impact upon an organization has impact upon an organization's employees' expectations. This responsibility upon the organization's management.

### 3.7 Incentives for Motivation

While it may be too ambition for a manager to aim at creating condition as that help people reach self-actualization level', he will do well in creating conditions that help people away from frustrating experiences and that keep them constantly to put forth their best. He can do the following:

(i) **Work Motivation and Job Satisfaction**
These are two dimensions that influence the productivity or work effectiveness of any employee. Researchers have shown that adequate salary, good working conditions, job security, physical facilities, conducive policies, supervision etc, contribute to job satisfaction. However, presence of these conditions does not ensure a motivation to work. Recognition of work done, status, opportunity for promotion, nature of work, responsibility etc, have been found to play an important role in creating a motivation to work on the part of the employees.

(ii) **Create Conditions to Meet the Basic Needs of Employees**
Provision of the basic necessities would help in a great way to save energies of employees which can be used for better purposes. If the management cannot help in these matters, at least, he can be sympathetic to the employees and do the little he can in his capacity. There are several examples of managers, who work in extremely frustrating conditions but make their staff feel happy and homely.

(iii) **Create Climate of Interdependent and Independent Working Rather Than Dependency**
Some managers are so creative in their working patterns that every employees looks up to them for advice and constant guidance. In some cases, managers may not be allowing their employees to do anything own. In such a climate, the employees do only those things are asked to do by their boss and will do anything on their own initiative.

186
(iv) **Problem Solving Approach Rather Than Avoidance**
Approach oriented managers do well because their staff member also develop this style of facing problems. Managers should attempt to encourage their staff to be problem solving rather than avoiders. A manager who cannot take responsibility by himself also cannot let this subordinates take responsibility. Unfortunately no work gets done unless people feel and take responsibility to do it.

(v) **Personal Example**
Staff members are constantly looking at their boss for guidance and examples. By setting a good example, he provides good models for initiation. If he is authoritarian and non-trusting, his next level staff also may attempt to be like that, ultimately creating a climate of suspicion. Therefore, he should set an example by his own tasks.

(vi) **Motivation Trough Guidance and Counseling**
A good is a counselor of his staff. He interacts with different categories of employees who have different need patterns. He has to be very sensitive to them and to their needs.

The secret of creating and maintaining the kind of organization climate conducive to motivation lies in three simple but extremely important steps:
(a) Relaxing top to bottom pressure.
(b) Providing more opportunities for unrestrained organization performance.
(c) Resorting to principles of participative management to the maximum possible degree.

All these contribute to the maintenance of the moral of the organization members and that is a fundamental duty of the mangers.

4. **HUMAN RELATIONS**

4.1 **Definition of Human Relation**
The term "Human Relations" applies broadly to the interaction of people in all types of endeavors in business, government, social clubs, schools and homes. Much of this interaction is in organizations where people work together in some sort of formal structure to achieve an objective. The human interacts that develop to recognize that both organizational behavior and human relations cover the same subject and having the same general goals of improved behaviors. The definition of these two terms is an under:
(i) **Organization Behavior:** It is an academic discipline once med with understanding and describing human behavior an organization environment.
(ii) **Human Relations:** It goes one step further and applies behavior knowledge in operating organization to build cooperation towards organizational ends. It is action oriented and goal directed. From the view point of a manager: Human Relation is the integration of people into a work situation that motivates them to work together productively, cooperatively and with economic, psychological social satisfactions.

A key activity in human relation is motivating persons. A manager is not restricting or pausing or driving them; rather, he is helping to release and guide inner drives which they
already have. People are sources of greatness in any organization. In the world of work all resources, expect than their input. Man alone can produce, through motivated creativity, an output greater than sum of his inputs.

Both a person and an organization seek results effectively, that is, with minimum inputs in relation to output. For an organization, this is the idea of productivity of minimum cost for each unit of output. Human relations seek to pay for itself economically and psychologically by reducing costly forms of behavior and increasing desirable forms of actions. In modern terms, it behavior pullulates in the environment and improves the quality of life.

4.2 Importance of Human Relations

When the human relation movement began in management about five decades ago, it defined an organization a social system, a of cliques, grapevines, informal status system, rituals and a mixture of logical and illogical behavior emphasized the need to improve the relationships among organizational members, through an understanding of the human nature the individual social and psychological needs, and the role of informal relationship. Its main doctrine is that people work better if they elated as human beings.

Since environmental conditions are always changing, a sensible executive must adjust accordingly. The manager must change the environment to suit the conditions or change himself to affect reasonable adjustment. The required knowledge of human nature will help him a fit in this task. This conducive situation will produce desirable results for the enterprise as a whole.

4.3 Human Relations in an Educational Organization

Education is characterized by the intellectual capacity or the persons constituting the categories of teachers, learners and administrator. Their ability to be effective collaborators of a team is greater than other large enterprises.

Education enterprises and industrial agencies are in many respects similar. After the human relation movement education enterprises are showing eagerness to establish a balance between.

(i) The organization and its members.
(ii) Organizational objective and individuals goals.
(iii) Output and the people.

A people organization, which is aware of the interests of the people concerned as well as the need to maintain the highest possible output, is the ideal towards which most Educational administrators would wish to progress. This is evident in the type of motivational forces which are being recognized and used. The older notions of reward and punishment are being replaced by a system of motivation, which accepts the diversity of human needs, particularly in relation to social, egoistic and self actualization needs. Let us see how we can develop good human relationships.

4.4 Principles of Human Relations

(i) Gaining Knowledge of the Self

To know one's self is now self is one of the most difficult things to do in life. Even though difficult, it is nonetheless essential for good human relationship.
Knowing oneself implies proper assessment of one's own shortcoming, strong points, emotional conflicts, frustration, and if possible, one's subconscious workings of the mind or to have a deep look at one's personality objectively.

(ii) **Seeing oneself through the Eyes of Others**
It is extremely helpful to have a look at one's self though the eyes of the others. We are not only blind to our own image within ourselves but also blind to our images in other people's minds. Therefore, knowing one knows one's own self can be immensely helped by knowing what others, say about ourselves.

(iii) **Self-Realization**
A really satisfied and self secured person is seldom aggressive on petty in life. A person who knows that the cause of aggression comes from within is much less aggressive because of his conscious control of himself. It is the blind person who is all the time blaming others and creating ill will all around. He can never be an effective administrator. He cannot create a sense of loyalty and motivation in others.

(iv) **Counseling**
Counseling is a specialized technique. Since the situations are changing fast, and the training given to an executive, to run a particular organization today may not be helpful tomorrow, it is desirable for them to acquaint themselves with the fundamental principles of counseling.

(v) **Knowing Others Values**
One of the most important qualities of a leader for motivating his colleagues and subordinates is the he must know their goals in life, their standards values and cultural background, their image of themselves, their expectations from others, their frustrations, their hopes and fears. He should also know the political and occupational groups to which they belong.

(vi) **Participation in Planning**
Participation of the colleges and followers in the implementation of certain programmes is necessary in the organization. What is important to note is that the following should not be made to feel that they are being ignored.

(vii) **Kindness**
Kindness is a principle which may not be accepted and practiced by an authoritarian personality but researches reveal that kindness, there it is really need, always leads to happy results; some time just a par on the shoulder saves the individual from many pitfalls in life. Punishment, wrongly awarded, may lose the individual forever.

(viii) **Optimum Communication**
One of the reasons for indiscipline of absence of good human relationship seems to be that the real line of communication between the seniors and the juniors is broken with the result that they fail to understand one another. Consequently, it leads to suspicion, misunderstandings frustrations. These may result in complaints grievances cribbing ultimately disobedience, indiscipline and the times agitations...
and even revile. Undoubtedly, proper communication is highly filistrable for good human relationship and for good administration of an organization.

(ix) **Evaluation**
Times are gone for the administer to rely on his rational considerations alone or mere impression gathered unreliable sure liable sources. Social sciences can provide scientific methods to avoid watch of time, mercy and energy and help the organization in making their policies successful in modifying them, through a process of evaluation.

4.5 **Personality Factor in Human Relations**
Sometimes people wonder why some managers and executive's succeed to remarkably well, while others, almost equally qualified in terms of professional training and intellectual capacity, fail in similar circumstances. The answer, perhaps, may be attributed to the type of personality they possess. Personality is one of the most important factors in managers, leaders and commanders in creating a favorable and unfavorable atmosphere of human relationships in any organization. Personality factor in human relations is discussed under the following five headings:

(i) **The Authoritarian Personality**
An authoritarian personality is own which demands unquestioning obedience and submission. It is rigid and intolerant of the shortcomings of others. Such an executive is unusually strict in getting work out of his subordinates and becomes I extremely autocrat. He make all decision's himself and keeps interpersonal relationship with an authoritarian atmosphere in the organizational and the in the very process of maintaining discipline, sow the seeds of misunderstandings and consequently tension and discipline.

(ii) **The Frustration, Aggressive Type**
There are some individuals who are all the time grumbling or cribbing irrespective of the objective situation in which they are placed without realizing that he source of their trouble lien within. They are all at the time critical of individuals, situations around, and always out with a number of grievances and demands. Even if you meet their demands they will never feel satisfied. Such individuals become a problem for their subordinates.

(iii) **Chronic Orotic Alarmist Type**
An off shoot of the above type a person who is all the time criticizing, grumbling only the negative aspects of the things around. Unconsciously, such people spread alarming news about such happenings and have a ability of misinterpreting thing to their way of thinking which always converges to ultimate destructions. Such are the people who are called alarmists or disruptions not with any bad intentions but by the compulsions of their personality set-up. These people them guidance and counseling you may be able to change them.

(iv) **Anti-Authority Type**
These people stander the superiors for their shot comings, real or imaginary. The subordinates’ contemptuous outlay looks down upon their supervisors’ as inefficient or incompetent. They develop an inflated view of their own importance.
and show scanty regard to the lawful authority. If the boss happens to be human, he will be criticized for not being a good administrator, if he is firm, he will be criticized as cruel.

(v) **Mixed Type**
A case can be mentioned of peculiar combination of anti-authority and authoritarian types. Such a person is aggressively possessive, tyrant for the subordinates and a problem for the seniors. He may be extremely efficient, well read and intelligent. Neither his education nor efficiency of intelligence is of any avail in view of his personality factor. Self-realization can help the situation.

4.6 **Limitations of Human Relation**
Although the study or human relations approach helps in identifying some general and broad types of rules and considerations which help us in establishing a report with other employees of the organization, but it has certain limitations. Ghulam Jilani conceives these limitations as follow:

(a) **Vastness of Human Nature:**
Each individual and each situation is unique. Therefore, knowledge of general principles of psychology cannot be blindly applied to every situation equally well. Man is a dynamic, purposive being with ever changing moods and emotions, desires and aspirations, frustrations and aggressions. Every administer therefore, will have to use his insight, experience, and discretion in dealing with other human beings, instead of handling them mechanically on the basis of principles alone.

(b) **Personal Prejudices**
During the course of life, every individual acquires certain attitudes, motives, and forms of behavior which make him rigid in his relationship with others. Awareness of this trait does help a person to become less gigged and to meet situations of life better. To what extent one is capable of adjusting himself and differs from individual and situation to situations.

(c) **Resistance to Change**
When we learn more about how to motivate others, it usually calls for some change in us. Unlike a physician or a scientist, here the senior himself is involved emotionally in the situation which makes his task all the more difficult.

(d) **Expecting Too Much From Others**
The anxiety on the party of some superiors to make people work hard to get the maximum without being sincere, defeats all efforts of motivation.

(e) **Perfect Human Relationship: An Ideal**
A leader should not strain him to achieve such an ideal. It is not only impossible but also inhuman to extract such a machine like behave from others.

We can conclude from all this discussion that a good managers trust workers and gives them freedom to plan their own mechanism of doings. Praising before other workers, gibeing increased responsibility, writing letters of commendations, and praising before the higher authorities are some of the mechanisms that can be used for good human relationships. Such a recognitions and public acknowledgement hips workers to value work, derive a sense of satisfaction and feeling of importance, which go long way in motivation them for better work.
5. **SELF-ASSESSMENT QUESTIONS**

1. What do you understand by communication and its significance in an organization?

2. Enumerate the different channels of communication. How do these affect the working of an organization?

3. What are the major problems in communication? Suggest some remedies with reference to educational management.

4. What is motivation? Discuss its significance to enchain the efficiency of an organization.

5. Discuss the different techniques, a manager can adopt know about the behavior his employees.

6. Analyze the different determinates of employees behavior.

7. What different incentives you may use as a manager, to enhance the Output of your organization?

8. Discus the limitations of human relations in an organization. How would you promote them among the personnel in your organization?

6. **BIBLIOGRAPHY**

1. Davis Keath, Huan behavior at work. meGrawthere Book Company, New York, 1972.


CONTROL IN THE MANAGEMENT
OF EDUCATIONAL PERSONNEL

Written by: Dr. Hamid Khan Niazi
Reviewed by: Ms. Tahira Bibi
# CONTENTS

<table>
<thead>
<tr>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to Control in the Management of Educational Personnel</td>
</tr>
<tr>
<td>2. Management Philosophy and the Scope of Control</td>
</tr>
<tr>
<td>3. The Role of Management Information System in Control</td>
</tr>
<tr>
<td>4. The Essentials of Control</td>
</tr>
<tr>
<td>5. Developing Managing Control Instruments</td>
</tr>
<tr>
<td>6. Application of Control</td>
</tr>
<tr>
<td>7. Dangers of Over Controlling</td>
</tr>
<tr>
<td>8. Consequences of Inadequate Control</td>
</tr>
<tr>
<td>9. Managing the Control System</td>
</tr>
<tr>
<td>10. Integration of Control into the Organization</td>
</tr>
<tr>
<td>11. Effects of Control on Employees</td>
</tr>
<tr>
<td>12. Self-Assessment Questions</td>
</tr>
<tr>
<td>13. Bibliography</td>
</tr>
</tbody>
</table>
1. **INTRODUCTION TO CONTROL IN THE MANAGEMENT OF EDUCATIONAL PERSONNEL**

   The goal of planning is to predict and affect the future environment. Controlling is a companion activity that examines the past to see whether what happened corresponds with what was planned. Further, controlling involves taking action on any deviation that is found between actual and planned occurrences. In this sense, control may be considered a remedial activity.

   It should not be assumed that because control is remedial in nature it is any less important than planning. The actions and behaviors called for in a plan do not automatically occur simply because the organization has committed itself. Plans must be implemented, which is what most of this unit discusses about. Implementation is begun by subdividing the plans to make them operational and organizing people to carry them out. Together, these two steps determine that behavior is to take place, by whom, and to a large degree, how it is to be done.

   Still, there is no guarantee that action will take place or that, if it does take place, it will adequately complete the plans. To this end, managers must be involved actively in the work of the organization as well as at the more detached level of planning and organizing. First, they are the decision-makers. They relate the plans to internal and external pressures, as they arise. Second, they must communicate the behaviors described in the plans to the employees. And third, managers must intercede to start and maintain action through the use of influence and leadership. The final step necessary to complete the cycle is that of obtaining feedback about what has occurred and taking corrective action as required. This is the activity of control. Control, as the fourth stage of the Management process and is the process which ensures that all activities undertaken by an organization are guided inward the accomplishment of the planned objective of target. The essence of this process is to determine whether an activity is achieving the desired results or not. For this purpose, the manager has to have a clear idea of what the "desired results" are.

   Let us get one point very clear. Control in management does not mean checking or, obstructing. If one were to look for an analogy for control from driving a motor car, to what will the function of control be compared? Think over it.
   i. Brakes
   ii. Steering wheel
   iii. Combination of both

   According to William F. Gleick, Control is the managerial skill that attempts to ensure effective use of the enterprise’s resources and achievement of its objectives.

   Not only are control systems needed in all organizations, but they must also cover all major activities related to an organization’s inputs, process, and output. In more specific terms, control is needed for reasons including:
   1. Standardizing performances to increase efficiency.
   2. Safeguarding organizational assets from theft, wastes, and misuse.
   3. Standardizing quality to meet engineering and customer specifications.
   4. Setting limit through job descriptions and auditing system within which delegated authority can be exercised.
2. MANAGEMENT PHILOSOPHY AND THE SCOPE OF CONTROL

The basic management philosophy underlying the control function refers to its role in helping organizational members achieve desired results. Consequently, the design, administration, and review of control systems must reflect this philosophy if there are to be positive contributions toward goal achievement. At the same time, one must recognize environmental factors, such as legislation, social values, consumer groups, and competition that have an impact on the type of controls exercised by managers.

In most business and educational organizations, production, sales, personnel, research, transportation, and capital funds represent some of the most important areas to consider for control since each contributes to an attainment of organization goals. By themselves, however, these areas are not directly controllable. Instead, the basic elements of each area are controlled that is, quality, quantity, time, and costs. Production and marketing goals, for example, can be stated in terms of quality standards meeting various classifications of grade and size, quantitative budgets, time standards (determining when various operations should be started and completed), and cost standards (staying within established cost boundaries). Finally, it is important to note that each of these elements must be subjected to measurement. Where appropriate measurement is not performed, corrective action cannot be taken and the result is needless waste and ineffectiveness.

The scope of the control process can be shown by dividing it into three separate time phases pre-control, concurrent, and post-control. In this way, some controls are focused on certain activities before they take place.

i) Pre-Control

When controlling takes place prior to the performance of specific functions or activities, it is called pre-control. In such cases, the intent is to prevent or limit undesirable actions before they occur. As an example, managers may keep advertising programmers from being started until the products are actually available and salespeople have the necessary product information, suggested prices, and lists of potential customers. Thus, through the use of pert networks, time schedules, and other pre-control techniques, various mistakes can be avoided.

ii) Concurrent Control

Concurrent controls monitor activities or projects while they are being carried out in such cases, the control cycle is more apparent. Results are measured and compared against standards. When necessary, corrective action is taken. Employee performance and equipment operations are examples of activities that are often monitored through concurrent controls.

When checking employee performance, managers determine whether subordinates are accomplishing objectives as planned. If undesirable results are seen, corrective action in the forms of guidance, suggestions, and advisement by the manager is taken to bring performance back in line with standards.

In some organizational settings, subordinates have the authority and
responsibility to make their own adjustments. Operating a machine or piloting an airplane, for example often requires adjustments in performance or speed by the operators before being told to do so by another person. Many people also apply their own concurrent controls. With reference to equipment, automatic devices can make self adjustments to keep temperatures within prescribed limits.

As with pre-controls, concurrent controls imply that managers do not have to wait until the end of a designated time period before corrective action can be taken. To correct deviations as they occur, however, depends on affective standards and rapid feedback systems that keep managers informed on performance as related to plans. In some control systems, feedback may be instantaneous.

iii) Post-Control

If evaluation and corrective action take place only after a function or activity is completed the time relationship is one of post-control. Generally, this is and corrective action cannot improve past results. However, controlling after, the fact, as expressed through financial statements and other types of reports, does permit managers to look at undesirable factors and make adjustments for future the least desirable type of control since performance has already been completed operations.

Not only are control systems needed in all organizations, but they must also cover all major activities related to an organization's inputs, process, and output. In more specific terms, control is needed for reasons including:

In most organizations, post-controls do not exist by themselves instead, we usually find some combination of pre-controls, concurrent, and pos-controls. Students, for example, apply pre-controls when they develop good study habits. Concurrent controls are applied by having early testing programmes that indicate acceptable progress. If corrections in study habits do not improve performances, post-controls are used when a failing grade is received in one or more courses.

3. THE ROLE OF MANAGEMENT INFORMATION SYSTEM IN CONTROL

Decisions are only as sound as the information on which they are bases because of this; contemporary managers in large organizations rely heavily on a formal management information system (MIS). This system provides information which helps them control their operations. A computer is the keystone of the MIS: great masses of data cannot be processed rapidly without electronic assistance.

Managers must identify the information they need and the report forms which will be most convenient. This is basic to the system's success. Pertinent data must be automatically routed to the computer and processed into informative reports as a matter of course. These reports are then distributed to persons who make control-related decisions members to management. This arrangement assumes that accurate data of the proper type is gathered and submitted to the computer without delay. Information must
be current so that decisions re-made under the best possible conditions. A system that provides this kind of efficiency is infinitely easier to discuss than to implement.

4. THE ESSENTIALS OF CONTROL

One way of achieving a clearer understanding of the control function is to explain what we do not mean by control. The world-control based number of meanings; some of them are part of our common language and some are part of a technical language.

Some people think of control as coercion, force, or power: "Control of the flood waters........Man must control the environment........Out pitcher has lost control of his curve ball." These are example of control in the "power over things" sense. The controlling function of management used in this unit does not have this interpretation.

Another interpretation is the notion of control as any form of social influence. In this sense, authority over others is control information groups thus exercise control of work performance when they use their informal means of rewards and punishments to hold back the productivity output of rate- busters. This interpretation also differs from the one in this unit.

Controlling is the activity that measures performance and guides actions toward some predetermined target. At this point in our understanding, we want to look at the simple questions of what controlling is and how gets done. How should a manager control the more difficult questions, come later in the unit.

The term control, as we use it, has many synonyms. Words like regulation, checking, and monitoring convey the meaning of control we are trying to develop imagine an organization without control. You would find chaos and confusion. People would not know where they were or what they were doing, or how their work fit into plans. As a consumer, you can probably cite case after case where there seems to be an absence of control.

Another way to develop insight into this concept is through an example you may have experienced. Suppose you have an objective or goal for a course in school. This objective could ranger form just passing to gaining understanding and growth. Your plan for this goal will include study habits, preparing for class and assignment and performing in exams, discussions, and other projects. Assume you take the first exam (performance) and receive a grade of 63. Control comes into these pictures when you receive additional information about your grade. For example, where does the 63 rank in regard to the rest of the class? Does the instructor grade on a curve, or does he use absolute standards (90-100-A)? Will the instructor value improvement of performance during the course, or will every test grade is weighted the same? In other words, until you receive some control information, you do not know how to guide any future behaviors of action: you do not know how to guide yourself toward your target.

In the classroom illustration and the examples of the control synonyms, certain essentials of the controlling process are evident. In any control system, there is some predetermined target, a means for measuring actual accomplishments, a means for comparing actual performance with the target, and a means of correcting performance
to meet the target. Because these four essentials exist in any control system, and because they are used extensively in later portions of this section, each will received further attention at this point.

i) Setting a Target
This first element is the foundation upon which the entire process is built. You must determine what the results should be, or what can be expected. In short, planning must precede control.

This first element of the control process demands a look into the future and a prediction of a definite feasible target: This element may be in the form of a scientifically established standard, such as the weight-bearing limits of a bridge. It may be borrowed from information about what others have been able to accomplish for example, par for a golf hole. It often assumes that future performance instruction is directly related to experiences in the past, as with profits for the last twelve months. It may be merely a target agreed on by the manager and his workers to be reasonable.

ii) Measuring Performances
The second element in any control system is the measurement of actual performance. This element usually requires the greatest amount of work, since it involves keeping records of the results of one's effort.

It is obvious that this element must be considered at the beginning of operations one is to collect information about what a person is really getting done. Let us consider some examples of such measurable units: in production, it may be in physical units, such as number-or units of output, or units per man-hour or pounds of scrap page per unit output. In financial question, it is generally stated in terms of rupees revenue or cost or rations of cost to revenue. In marketing, the target may be stated in terms of number of units sold, percentage of the total market to be captured by the manager's unit, or the number of visits to be made by Salesmen.

The following are key considerations in selecting the unit for measuring performance:

a) Targets and results must be stated in the same units. For example, if the target has been set in rupees, performance should be stated in rupees.

b) The unit should encourage prompt reporting of actual performance. For example, if physical volume of output is available on a daily basis, daily volume is preferable to some other unit that is available only weekly.

c) Since all measurement is accurate only to some limited degree, the relative accuracy in the unit is very important. Unnecessary accuracy may be costly and of little use; on the other hand, "fudged" figures will not help in interpreting the data either.

iii) Making Comparisons
The third element of any control process is the comparison of actual performance with the expected target. This step adds meaning to the data. Some variation in performance can be expected in all activity. Therefore, the manager must
determine what amount of variation is significant and worth attention. For this reason, the technique for comparison should indicate clearly and quickly the size of the variation. The simplest technique is to record the target and actual performance near each other and, by visual inspection, determine which is larger. Here are two other simple techniques that make comparisons easier:

a) Record current activity and the targets in a line chart;
b) Develop ratios of actual performance to the targets, such as current expenses running over 10 percent of the target.

iv) Taking Corrective Action

The fourth element of a control process is the action phase of making corrections. If the comparison indicates that performance is satisfactory, no action is needed. If, however, the comparison indicates a large variation, the manager uses this information to signal corrective action.

Two basic types of error face the manager when taking corrective action. If the control devices are in error, he may take action when none is required. For a similar reason, he may also delay action too long. It does not automatically provide the necessary corrective action.

5. DEVELOPING MANAGING CONTROL INSTRUMENTS

Organizational control instruments fall into a three level hierarchy. The top most ones, which are quite formal, concern the overall organization. Less formal, more specialized devices exist in each department. Finally each person develops control tools which are often informal and casual. These are sued to control his or her special Job.

<table>
<thead>
<tr>
<th>The Control Hierarchy in a Large Organization</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization Level</strong></td>
<td>Examples of Control Devices</td>
</tr>
<tr>
<td><strong>Interdepartmental</strong></td>
<td>Organizational/divisional budgets meetings and report: Financial statements and analyses; department managers' performance evaluations: overall policies and procedures.</td>
</tr>
<tr>
<td><strong>Interdepartmental</strong></td>
<td>Departmental budgets, meetings and reports: departmental employees' performance evaluations; departmental policies and rules which are made by the manager: personal observation: Electro-mechanical controls on operating equipment.</td>
</tr>
<tr>
<td><strong>Individual</strong></td>
<td>Self-evaluation of actual vs. projected job performance; acknowledgment and departmental policies and rules; personal policies and rules for discharging duties and responsibilities; performance as judged by a supervisor on annual performance evaluation; personal observation; conscience.</td>
</tr>
</tbody>
</table>
6. APPLICATION OF CONTROL

At this point, you may think that you understand the essentials and idea of control, but you also probably feel the need for more specific application of these ideas to organizations. We, therefore, turn here to examples of applied control systems. In these examples, we show how each of the elements appears in actual control systems. In addition, we outline some of the special techniques for applying these essentials to the operational areas.

i) Controlling Products

Some organizations specialize in purchasing products, manufacturing products, or marketing products. Some do all three. Regardless of the nature of this specialization, managers need to control the path and timing of the flow of products, the quantity of products available, and the quality of the products. Therefore, we shall describe applications of controlling products to meet each of their needs. Controlling the timing and path of the flow usually is called production control. Controlling the quantity available is called inventory control.

**Strategic control point**

Controlling quality is called quality control.

Production Control: Production control consists of five functions:

a. Routing: Routing determines the operations to be performed, their sequence and the path of flow of materials through a series of operations.

b. Loading: Loading is the function of assigning work to a machine or department in advance.

c. Scheduling: Scheduling of production determines the time at which each operation is to take place.

d. Dispatching: Dispatching is the process of actually ordering work to be done.

e. Expediting: Expediting is a follow-up activity that checks on whether plans are actually being executed.

Production planning and control are often handled by one department. This directs the operation of a number of sub-systems of control.

The first three of the functions of production control aim at setting specific targets, the first essential of control. Dispatching directs actual performance, the second essential, and expediting is involved with initiating corrective action, the third essential?

**Inventory Control:** inventory control is a product control system that relates to purchasing, production, and sales. The, types of inventory to be controlled are (1) raw materials and parts, (2) work in process, and (3) finished goods. Inventory control handles the following questions:

What is the optimum amount of inventory to carry?

i) What is the economic lot size for an order?

ii) What is the record system for showing the status of inventory on hand?
Quality Control: Controlling quality of products (also called quality assurance) has greatly improved in the last fifty years as a result of refinements in systems. This improvement has been possible chiefly because of the application of statistical methods using probability theory. Using samples from work in process, the product can be checked against standards so that the output will contain a minimum number of rejects. This quality targets are set by specialists. Samples of products in production are tested at intervals to provide data on the current quality. These samples yield data that may vary from standard for two reasons: because of the chance selection of the items in the sample, or owing to some "real" cause, such as the wearing of a cutting tool. The problem in controlling quality using samples is in differentiating between these two factors, so that corrective action is taken only when it is probably needed.

Statisticians have provided tables for determining the size of samples, degrees of risk for inference from samples, and other data using probability reasoning. The important skills needed by the non-statistics-oriented manager are:

1. A familiarity with the powerful tools provided by statisticians and an ability to interpret the output of their work.
2. Quality charts offer a graphical means by which the manager can interpret this information supplied by the statisticians.

Controlling Finances

In any organization, there is a need to establish systems for controlling revenues and costs. If costs exceed revenues over a long period of time, the organization is not performing the function expected of it. We shall discuss two systems for controlling finances: standard costs and budgetary control.

a) Standard Costs: in accounting, standard cost systems are based on predetermined costs developed from either past experience or expected future manufacturing costs. In standard costing, the unit cost of a particular product is the sum of:

1. The standard labour costs.
2. The standard material costs, and
3. The standard overhead costs. As products are completed, the inventory of finished goods is charged with standard costs of completed units. Actual costs are collected, and then the manufacturing cost variances results from a comparison of the standard costs and the actual costs.

The use of standard cost systems, thus make possible an analysis of different classifications of cost variances and pinpoints the areas in which corrective action is needed.

Budgets are principal techniques for planning receipts and expenditures. Budgetary control is a system of using the targets established in a budget for guiding actual performance.
Budgetary control is a simple direct application of our three essentials of control. After budget figures are set, records of actual receipts and expenditures are kept. For each item, the budget is compared with the actual performance, and variances can then be noted over or under budget. The manager then has the necessary information upon which he can take corrective action

1. To increase receipts,
2. To reduce expenditures,
3. To revise the budget.

This process enables the manager to check continual and to locate problems in finances early, before they develop into large figures to threaten the very existence of the organization.

b) Budgetary Control

Applications of the essentials of control are varied with regard to manpower; in the language of control, the jobs and positions are the targets. And the manner in which the people do the jobs is the performance that must be measured.

A manager must always determine whether people under him are "doing a good job". So, they may leave such evaluations to this own judgment, however, such a tendency may cause personal biases (whether he likes the subordinate or not) to affect his judgment, and it will be more difficult for him to point out to the subordinate the basis of his judgments. Therefore, some systems of performance evaluations are usually desirable to help the managers control performance.

Of course, the first step in deciding whether a worker is doing good job is a clear understanding by the subordinate and the manager of exactly what the job is. Considerable effort has been devoted in establishing a "fair day's work" that is, the reasonable effort, skill and output that should be expected. After the target is clearly set, a system of performance rating of the job is measurable in quantitative units, such as number of pieces produced, profit in rupees, or a score in an athletic contest, actual performance can be objectively measured.

iii) Controlling Manpower

However, many jobs, such as college teaching, have as the product a service that is difficult to state in numbers. In these cases, it is desirable to develop an index of performance i.e. objectively measurable factors. This hours taught by the instructor (number of students in classes' timer the-number of credit hours): It can also include subjective rating systems, in which the superior rates quality on the basis of some scale for instance, I through 10 for each factor important to the job. This rating system can incorporate opinions of the customer, student, or user of the produce. For example, the quality of an instructor's performances could be evaluated by the student in his class, by the employers of the students when they take a first job, or by instructors who teach courses that make use of the knowledge contributed by the one being rated.
These examples of control systems apply the four basic essentials of control and are representative of the large number of control systems possible. You should constantly be aware of cases in your own practice where you might develop your own tailored control system, using their same four essentials as guides.

7. DANGERS OF OVER CONTROLLING

Too much control, like too much of any good thing, can ruin potential benefits. An organization with a cumbersome system of checks and balances trips over its own feet. There are several undesirable consequences of over controlling discussed as below:

i) Overlapping and Duplication
   One result of over control is excessive overlapping and duplication several employee, meetings, reports, or pieces of equipment may apply to same subject. One could do the job just as effectively.

ii) Retarded Creativity
    Over control also retards creativity. “By the book” paranoia forces employees to sacrifice their innovative urges and conform to the system. Lowered morale emerges as a consequence. This is a common problem in larger organizations with highly detailed policies and procedures. Managers, who can blend the need for control with need for flexibility, have distinguished between need-to-know, nice-to-know, and immaterial information.

iii) Discouraged Delegation
    Delegation, one of a manager's most valuable time-saving techniques, is also discouraged by over control. When higher management demands extreme detail and rigid accountability, employees farther down in the organization hold the reins of their jobs tighter. Delegating to subordinates would automatically eliminate the bands-on control which superiors expect. Eventually lower managers become overworked and unnecessarily burdened with detail while subordinates talents are either underdeveloped or underutilized.

iv) Obscured Costs
    Too much control also germinates a spate of obscured but often high costs. Although, it impossible to computer the exact expense or over controlling, two areas of excessive cost can be easily identified.
    A) "Non-mechanical" controls require people. An over-controlled organization has an inflated payroll form hiring too many persons in control-related jobs. This is exemplified by a large internal accounting staff, numerous quality-control-related reports or does follow-up activities for superiors.
B) "Materials and equipment" account for the second area of control-related costs. Reports, the major offender here, use up depreciation on printing and distribution equipment. Computer-produced reports take the machine's time and "specialized personnel away from other functions which may be more important. When a large organization's managers squirrel away excessive reports, demand for filling equipment, flour space, and file maintenance personnel increase accordingly. The cumulative effect is staggering. Happily, the computer's ability for information storage and retrieval has encapsulated the tilling problem in many cases.

v) Controls Used as an End Rather Than a Means
One final side effect of over controlling is the tendency of management to use controls as an end in themselves rather than a means. Instead of using controls to check on the progress of plans, habitual over controllers tend to maintain control methods for their own sake. This situation results in a proliferation of control devices; policies and procedures which support them grow in mind-boggling volume and detail.

8. CONSEQUENCES OF INADEQUATE CONTROL

i) Lack of Information
Too little control proves to be every bit as troublesome as too much. The most immediate and general danger of inadequate control is lack of critical decision-making information. An inadequate accounting system, for example, can result in missed cash discounts, inefficient purchasing, poor cash flow planning, unreliable budgets, embezzlement, and the ultimate disaster, bankruptcy. Similarly, inadequate and insufficient control by Divisional Directors, Education Officers, and A.E.Os may completely cut them off from the system.

ii) Increased Production Cost
Poor control in the productions area results in wasted material and high scrap and rework losses. These all add up to a higher productions cost. Normally this will be recovered through the selling price. However, if that is out of line with competitors' prices, sales will be adversely affected and overall financial performance damaged.

iii) Poor Product Quality
Ineffective quality control manifests itself in recalls. Typically, this happens because no inspection standards were set or because inspection was not thorough enough to disclose the problem. Rapidly deteriorating standard of education is to a great extent due to inadequate control of institutions by those responsible for it.

iv) Chaotic Flexibility, Buck Passing, and Mediocrity
Inadequate personnel-related controls result in a chaotic form of feasibility. This may happen when management eliminates time clocks as a morale-building
gesture and places all employees on salary. Employees sometimes abuse the
privileges of arriving late or leaving early. They are paid for time spent off the
job. Related problems surface in the form of decreased productivity and poor
labor cost data.

Insufficient personnel control also leads to buck passing and mediocre
performance by people at all levels. Although people enjoy a relative degree of
freedom in their work, some control is necessary to achieve orderly, concerted
progress.

9. MANAGING THE CONTROL SYSTEM

This is question which should be explored in any discussion of controls. Managers
need current information in the most useful forma at the proper time in order to make
effective decisions. The problems are the information requirements vary widely from one
manager to the other. Management can take several actions to confine the control system
to its proper place as a managerial tool:

i) Question "Reports"
Managers who influence the distribution of reports should be bold enough to
question their use, content, and format. On way to accomplish this is through
usage poll which queries each recipient's use of a given report. This approach is
most effective when the manager computers the cost of the report and includes it
in the usage questionnaire.

ii) Do "Cost-Benefit Analyses"
Another step toward controlling is to analyze the cost versus the benefits in returns.
It must be able to justify itself form economy and social point of view. This should
be required periodically in the life or all control devices. Conditions sometimes
change after a control instrument is installed those which were originally cost
effective may later become more expensive than they are worth. Reports can
become unimportant, equipment unnecessary and meetings a waste of time.

iii) Use "Buck Slips"
Sometimes written reports and other controlling documents can be circulated with
a "buck slip" attached. This is a checklist of everyone who needs the information.
Recipients make note of the important data. Initial the space opposite their name,
and send the report to the next person on the list. As a result, one copy can circulate
throughout an organization and return to its source. This allows management to
make significant savings in printing, distribution, and tiling.

iv) Correct "Misguided Attitudes"
Some managers use report distribution lists as status symbols. The more they are
on; the more important they seem to be. Others are report hoarders. They believe
they are paralyzed without immediate access to every report produced. These misguided attitudes must be diplomatically but effectively corrected. Managers must distinguish between critical, marginal and immaterial information.

v) Use "Exception Reports"
Exception reports are a very effective control technique. They make "management by exception" possible by highlighting problem areas which need corrective or preventive action. Information trouble sees areas are nice to know, but it is not mentioned in exception reports because no attention is required.

10. INTEGRATION OF CONTROL INTO THE ORGANIZATION

Control, like all other managerial activities, cannot be considered as an isolated function. In order to work, it must be coordinated with other organizational activities. Without such integration, control systems could not be made efficient, effective, or themselves kept in control.

i) Control and Organization Design
The control system needs to match the design and purpose of the organization. The major areas that need to be coordinated with control are: goals chain of command, work flow, decentralization, and technology.

a) Control and Goals: We know that organizations have complex network of goals. But trying to maintain control systems that would ensure completion of all these goals is unrealistic. Instead, control systems can be made to focus only on those goals that make difference and that are subject to variation. At any one time, certain goals become more important than other. Thus, one month control might be focused on financial expenditures: another time personnel procedures may take precedence. The trouble with this sort of rotation is that it gives a "management by crisis" air to the organization.

In addition to these "crisis" control systems, certain functions are associated with very important organizational goals and, therefore, rate elaborate control systems on the continuing basis.

b) Control and the Chain of Command: Control system need to take into considerations the authority lines of the organization. If they did not, employees might have one person telling them what to do (manager) and another person (controller) telling them whether their performance matches the standard. The possibilities for confusion and miss directions under such circumstances are great. Control groups often fail to perceive overall goals and even when they do they may not have the authority necessary to effect change.

c) Control and Work Flow: Control points along the work, flow sequence are necessary to measure product consistency. This quality control activity is often assigned to a specialized staff, and for this reason may run counter to the authority hierarchy.
A major consideration in quality is where to place the sensors in the work flow. If an error, that occurs early in the sequence, is not detected until the end, the products is unusable and a good argument can be made for having a number of control points all along the work flow part. But increases in the number of control points restrict freedom, widen the overlap in jurisdiction of staff and line, and lead to higher overhead costs. In a single point control system for the same sequence, the control might be placed just before the most important operation so as to include all the activities in one comprehensive inspection.

d) **Control and Decentralization:** Controlling decentralized activities presents another dilemma for management. Control is needed, but the very concept of decentralization is negated if the manager has to receive evaluation, on every decision made. Still, a most important factor in the success of decentralization is maintaining knowledge about how things are going in the decentralized unit. So, how does the organization resolve this dilemma? Some guideline is applied here. First, control systems should focus on those activities that are especially important, and second, the control system can be built into the decentralized unit itself. If each unit generates its own feedback, decisions can be made faster and more accurately.

e) **Control and Technology:** A final consideration in coordinating control with the organization design concerns the technology that the organization uses. The Woodward studies showed control to be very difficult in small organizations where control instruments are generally crude and the control point is at the end of the work flow sequence. Large-batch organization, on the other hand, has the most specialized control units with many control points, but the whole control system is an appendage to the production system. In continuous-process organizations, control is built in the technology. Machines rather than people do the controlling automatically. In this situation, control is an integral part of the production system.

ii) **Control and Communication**

Because the principle of feedback is central to the control process, control, in a sense, is a form of communication,

a) **Understandability:** One of the first requirements of an effective control system is that it be understandable. Everyone involved in the system whether operating it or subject to its control must understand the standards, the type of behaviors that will or will not achieve the standards, the feedback process, and the corrective activities. This suggests that all phases of the control process need to be clearly specified and made as simple as possible to understand. Further, on lower organization levels, the system should be far less complex than it is at the upper levels. Some disagreement may occur between management and teaching and non-teaching staff over the issue of simplicity. The management understands the necessity for clarity and understandability while the staff
group, which consists of experts' in developing and maintaining control systems, is interested in obtaining a maximum of information and so argues for as sophisticated a system as possible.

b) **Redundancy:** Analyzing feedback information provides a useful perspective not only of the behavior being measured but of how well the system is operating. It may be recalled that in the discussion of feedback in communication it was emphasized that to obtain understanding. The whole communication cycle may need to repeat itself a number of times. This is also true of the control cycle. The corrective action phase is not so perfect that it automatically reveals the correct remedial action the first time around.

c) **Relevance:** When control systems are seen as concerned only with what has already happened, people deal with them only when, they have nothing else to do. Control systems need to run the control cycle through a number of times, rather than just once, puts a further premium on quick feedback. Again, simplicity is the key. It is better to operate with approximate a preliminary figures than to wait for specific and complete information that comes too late to be of any use. Emphasize their relevance to the present and near-future activities if they are to gain the attention of busy managers. In addition, if the feedback information is compared with some very long-range organizational plans, the whole environment may have changed significantly by the time it is relevant, and its purpose will have been defeated.

d) **Direction of Feedback:** Usually, information gathered by the sensors is relayed up the organization hierarchy to decision-makers, whereas communication about corrective action is relayed downward to the operating levels. This cross flow of information creates a control gap in the same manner that a planning gap is created when staff groups do the palling and line groups do the overseeing. The people performing the work are left with the feeling that corrective actions, particularly if untimely, are not in line with the reality of current operations. An alternative is to place the entire control cycle in the hands of those performing the task. This is a major goal of those who support job enrichment. It involves entrusting a good deal more responsibility to requires that management have a high level of trust in the work force.

e) **Design of Information Systems:** Wherever the responsibility for the decision phase of the control cycle is placed it upward or downward or with a staff, it is necessary to plan. What information it to be received by the decision maker. When the control cycle not well spelled out, or when the decision-makers not specified, there is a tendency to spread information out at random, hoping someone will pick it up in time to do some good. If the information is useful, it must be stated in usable terms and delivered to someone who knows what to do with it.

Control cycles, like plans, differ according to organizational levels. At lower levels they are immediate and specific dealing with how things get done. Toward the top of the organization, the control cycle focuses on what
is to be done and covers a longer time span. The information received by the various decision-makers must reflect these differences in the types and the subjects of that which is being controlled. If top management is provided with a great deal of clay today, operational information, they must sort through it to glean the few facts they can use. One the, other hand, the line supervisors need to have access to all the operational information that is gathered.

iii) Control, the Planning and Decision-Making Instructions
Since plans are the standards of the control system, they should be designed with an eye toward how they will be use in the control process. Actually, most planning techniques do have built-in control aspects: timeliness; understandability, confusion of data and behaviors, and the exception principle.

a) Timeliness: Particularly in small organization, the control aspect of account takes place at relatively long intervals, perhaps semiannually or yearly. In large organizations, the process is a continuous one in which monthly figures are usually available, but even here the information that the manager receives may not be timely. Accountants, like other staff groups, want to present their information to the highest possible level in the organization. But the people at high levels are not necessarily the decision-makers in the control system, so the information must filter down through a series of Levels instead being sent directly to the proper source, saving considerable time.

b) Understandability: The accounting system is designed to accomplish a number of tasks. Most information developed from the accounting system is designed primarily to satisfy this external source and to act as an internal control system. This generates information that is very difficult to understand and that may not be useful for control purposes. As a result, a whole area of cost and managerial accounting has grown up to specifically provide internal control information and not external information.

c) Resource Plans: A good example of planning with built in controls in budgeting. As a standard, a budget provides a clear and quantitative maximum or range of resources expenditures that is permissible. It is possible, with accounting data, to present not only actual figures or expenditures but also to make projections for control purposes. Part of this control aspect would involve simply projecting current spending patterns into the future. Also available is past history. Certain departments, for instance, may show patterns of spending money at the beginning or the end of the budgetary period, and these trends would have to be incorporated into any statement of current expenditures. With this information it could be determined whether a sudden increase in material costs in a production department with a history of stable expenditures, means that something is happening that needs.
Sensors and measurement techniques are very much a part of the budgetary process. And in most organizations, the accounting system probably has the best-developed feedback loop. But there are certain problems associated with account data when they are used for control purposes.

d) **Data and Behavior:** Budgeting systems are classic examples of control systems in which the measurements and the standards are representations of behavior rather than the behavior itself. Thus, deviations need to be studied carefully to determine the proper course of remedial action. The automatic response to reduce expenditures to meet the budget is often an incorrect one. The supplementary budget idea is one that attempts to account for environmental change and thus introduces a change in the standard into the budgetary process.

e) **Exception principle:** Managers are seldom rewarded for meeting their budget or for holding expenditures below the budget. Rather, they are penalized if they exceed their budget and frequently their budgets are but for the following year if they do not spend all the money allocated for the current year. This practice encourages managers to spend more than necessary to avoid a cut in next year's funds.

f) **Activity Plans:** Activity plans, too, have control aspects built into them. While money and personnel are the major items measured in budgets, time is the major variable in activity plans. Control, in this instance, is measured by the time it takes to complete tasks. We know this control through the implementation of critical path methods, such as PERT, which have a series of activities sketched out in the order in which they must occur and an estimate of the time required to complete each activity.

Feedback in activity plans is usually close to the decision-maker. Activity plans are drawn up and measurements taken by line management because the sequential nature of activities requires continual adaptation of the plan as well as immediate corrective action. Thus, control measurements in activity plans have the advantage over budgets of being designed directly for the job they are meant to monitor.

iv) **Control and Influence**
An interesting paradox is inherent in the control process. On the one hand, control implies maintaining stability and homeostasis; but on the other hand, in order to achieve balance the manager must continually adjust either the behavior or the plan itself.

a) **Power:** Directing the behavior of others is accomplished through the various bases of power. Earlier, under organization design, it was pointed out that control needs to be consistent with authority. The decision-makers in the control system must be able to enforce the decisions they make. The
most promising bases of power for enforcing control decisions would appear to be control of rewards and punishments and established authority, rather than expertise. This fact is inconsistent with the practice of establishing staff groups, whose power base is largely expertise, as organizational control agents.

b) **Strategic Leniency:** Managers often must choose which standards to enforce and which to let slide. This type of selective enforcement, called strategic leniency, can be used by managers to enhance their power base. Thus, managers choose not to enforce certain rules in return for cooperation in other areas. The trick to strategic leniency is to pick areas that are of low importance to the organization and of considerable importance to the needs of the employees.

v) **Control and People**

No discussion of control is complete without a section dealing with people reactions to it. People both like and dislike control. They like, even need, to know that the goals are that they are working toward, and they like to receive feedback. But they do not like to be watched constantly nor do they like to be told they are not meeting the standard.

Employees may perceive any control system, no matter how well designed and how effectively it takes them into account, as evidence of a lack of trust. Control systems seem to say that managers need to keep their eye on what employees are doing because they are not likely to do id correctly. If managers take any action when people behave wrongly which of course happens at times, a negative felling toward the manager is instilled in the employees. On the other hand of no action is ever taken employees are not likely to know that their behavior is wrong or, if they do, they may take advantage of the lenient policy. If the latter happens too often, a very strict control policy may be instituted.

Not all attempts at controlling are seen as negative by the employees however. As already mentioned control systems provide feedback that people need and want. It is the way they perceive the control system and what it means to manager that can create negative feelings. When control systems are not clearly visible of when they are called by another name they are far more acceptable than those loudly marked as control devices. Thus, where possible, control systems should be an integral part of the technological system a continuous process that is not labeled "control” and that is handled by machines instead of people. If has been found that when control systems are built into the technology, the pattern of interaction reverses so that employees are initiating contacts with the manager for help rather than the manager initiating contacts with the employees for the purpose of giving orders.
11. EFFECTS OF CONTROL ON EMPLOYEES

Control can have one of three effects: positive cooperation, neutral acceptance or negative resentment and evasion.

Most of the research on employee responses has centered on budgets. Some of the research applies to impose schedules as another control device. But the findings are so systematic that it appears that these results might well apply to all of giving orders.

Most of the research describes what happens when budgets are implemented. It does not describe or analyze the management that goes on in the development phase of budgeting. The question of who gets the most money from the budget has a major at effect one's career and work environment.

One of the manager's most important jobs is to make true the department gets its fair share of the budget of this process becomes too competitive, however, it is very dysfunctional for the enterprise. Cooperation and coordination may decline to zero. Some people become so used to budgets that they cannot function without them.

i) Positive and Neutral Reactions
Controls lead to voluntary compliance (neutral or support positive) when the following conditions are met:

a) Technical Competence: The control process must be competently designed and operated. This means the following characteristics should be present.

   The information and data used in the control system are accurate and up to date. This gives the system credit ability. The control system is not overly developed that is the number of standards to be met is reasonable and it is clear which are of primary and which of secondary importance. The feedback system is accurate and timely so that the manager becomes aware of problems in time to act if necessary.

b) Managerial, Participation and Communication: A number of studies have found that controls meet with acceptance and cooperation if the subordinates participate in the design phase, understand why the standards are needed, believe them to be both fair and attainable, and are included in the communication network.

ii) Negative Responses
Poorly designed (technically incompetent) controls or controls that are perceived as arbitrary (imposed from above) can lead to a series of negative result such as the following:

a) Fudging the Record or the System: One of the more typical responses to poorly designed or arbitrary controls is to try to beat the system. No accountant, lawyer or manager has ever designed a control system that could not be beaten.

b) Horse Trading: If top management sets unrealistic budgets and control systems, supervisors and middle managers will begin to horse trade. If they have found in the past that their realistic budget requests were cut 20
percent they will inflate their requests by 20-25 percent. When top management realized what is going on, the budget is cut farther, which leads to an escalation of the hours trading. This can be compounded by competition among units, which keep bidding each other up until no one knows the real needs of any unit.

**c) Over-emphasis on the Short Run:** Imposed controls can lead to an over emphasis on meeting today's budget, knowing that in the long run they will lose business. Some units sell assets in order to make short-run figures look better. Others lay off employees, knowing they will have to re-hire and retain them later. Deferring maintenance costs also makes the books look better. But it costs more when a new machine must be bought.

**d) Reduced Coordination:** Various studies have shown that imposed strict controls lead to tunnel vision an over concern with meeting standards regardless of the effects on the departments. Coordination suffers under these conditions.

**g) Feelings of Tension or Pressure:** Various studies have indicated that imposed strict controls can lead to the feeling that controls are simply pressure tactics. This often results in tension among lower-level employees, who then react negatively to management.

Do these negative results mean that the institutions or organizations should forget about controls? No. Even though some units may fudge their reports, controls still lead to improved performance.

There are different kinds of controls. Well designed and merely operated controls work better than those that are poorly designed and badly run. So the manager needs technical competence in the design and implementation of controls. In additions, many people react better and are more satisfied with controls when they help design them. Controls will work better when employees are made aware of the need for them and allowed to participate in their design.
12. SELF-ASSESSMENT QUESTIONS

1. Discuss the scope of control with reference to educational management. Also give examples to elaborate your viewpoint.

2. Find out examples from the field of education to further elaborate there essentials of control.

3. Write down your own definition of “control” and see as to how it fits to our discussion in the unit.

4. What is meant by MIS? Discuss the significance in control.

5. Describe and discuss in detail the constituent elements of control. Give suitable examples form education for their explanation.

6. Budget is a statement of future expenditures and receipts of funds. It is a qualification of management’s plans with a view toward control of the use of financial and other resources. Discuss Please.

7. Suppose you are the head of an educational institution. How would you proceed ahead in controlling the manpower?

8. What is meant by integrating control into an organization? What strategy would you adopt to achieve this end as an educational manager?

9. Critically analyze the different types of effects of control over employees. How would you react to them as an educational manager?

10. Just think of an example to show as to how does the construction of some secondary schools in your area/region gives/indication of the requisite corrective action the educational manager should take to keep the costs down.
13. BIBLIOGRAPHY


Allama Iqbal Open University Iqbal Open University, Plan Implementation and Management, 1979, (adapted from UNESCO materials).


=======