Use of Data for Educational Planning and Management

Training Manual

National Education Management Information System
Academy of Educational Planning and Management
Ministry of Professional and Technical Training
Training Manual

Use of Data for Educational Planning and Management

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GLOSSARY

The following definitions reflect the use of these terms in the context of Planning and Management for education system. Therefore, these terms do not necessarily reflect their usage in other contexts.

**CPM:** The critical path method (CPM) is an algorithm for scheduling a set of project activities. It is an important tool for effective project management

**Critical Path:** Longest sequence of activities in a project plan which must be completed on time for the project to complete on due date. An activity on the critical path cannot be started until its predecessor activity is complete; if it is delayed for a day, the entire project will be delayed for a day unless the activity following the delayed activity is completed a day earlier.

**Demographics:** The attributes of people in a particular geographic area. Such as age, sex, location, education etc.

**EMIS:** EMIS is a data collection, storage, retrieval, processing and dissemination system specially designed for use by decision makers and administrators to plan and administer education system more efficiently and effectively.

**GER:** The GER is the total enrolment for a particular education level (primary or secondary), regardless of age, expressed as a percentage of the eligible official school-age population of that particular education level in a given school-year.

**Goals:** A general desirable condition to be achieved, usually too general to be quantified, such as wealth, health, equity and freedom

**Human Resources:** People in work organizations, endowed with a range of abilities, talents and attitudes, influence productivity, quality and profitability.

**Management:** The day-to-day operation of the program within the context of the strategies, policies, processes and procedures that have been established by the project governing body.
**Mission:** A mission statement is a brief description of a project’s or company’s fundamental purpose. A mission statement answers the question, "Why do we exist?" The mission statement articulates the company’s purpose both for those in the organization and for the public [19].

**NER:** The enrolment in a particular education level of the official school age-group expressed as a percentage of the corresponding population. The NER gives a more precise measurement of the extent of participation in primary education of children belonging to the official primary school age.

**Objectives:** Specific, potentially quantifiable ways to achieve goals

**Operational Plan:** Operational plan, also known as short term plan, defines how you will operate in practice to implement your action and monitoring plans – what your capacity needs are, how you will engage resources, how you will deal with risks, and how you will ensure sustainability of the project’s achievements.

**PERT:** Program Evolution and Review Techniques (PERT) is a project management tool used to schedule, organize, and coordinate tasks within a project. It is basically a method to analyze the tasks involved in completing a given project, especially the time needed to complete each task, and to identify the minimum time needed to complete the total project.

**Planning:** Planning is a process of setting goals, developing strategies, and outlining tasks and schedules to accomplish the goals.

**Planners:** Planners are professionals who facilitate decision-making. Planners do not make decisions themselves; rather, they support decision-makers (managers, public officials, citizens) by coordinating information and activities.

**Process:** A process is defined as the series of steps followed in doing an activity. These steps can be illustrated in graphical or symbolic terms.

**Project:** A project in business and science is typically defined as a collaborative enterprise, frequently involving research or design that is carefully planned to achieve a

National Education Management Information System (NEMIS)
particular aim. Projects can be further defined as temporary rather than permanent social systems that are constituted by teams within or across organizations to accomplish particular tasks under time constraints [18]

**Plan:** A scheme or set of actions. This may be a *strategic* (general and broad) or an *action* (specific and narrow) plan.

**Programs:** A specific set of objectives, responsibilities and tasks within an organization.

**Resources:** The inputs used in the activities of a project or program. Broadly speaking, the term encompasses natural, physical, financial, human and social resources.

**Risks:** Risks are conditions under which the project/program is expected to function, but which can cause problems

**Scope:** The range (area, people, time, activities, etc.) to be included in a process.

**Slack:** In critical path method (CPM), the difference between the length of a path and the critical path. If an activity has zero slack, it is on the critical path.

**Strategic Planning:** Strategic planning is a process to establish priorities on what you will accomplish in future and forces you to make choices on what you will do and what your will not do? Strategic plan also gives a broad outline on where resources will get allocated?

**Tactical Plan:** The project tactical plan shows a detailed breakdown of the relationships between the major activities required by the project. Subsequent sub-project tactical plans are based on it and any later amendments should be highlighted.

**Vision:** A vision statement is sometimes called a picture of your project or company in the future but it’s so much more than that. Your vision statement is your inspiration, the framework for all your strategic planning [19].
## ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AEO</td>
<td>Assistant Education Officer</td>
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<tr>
<td>AEPAM</td>
<td>Academy of Educational Planning and Management</td>
</tr>
<tr>
<td>AJK</td>
<td>Azad Jammu and Kashmir</td>
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<tr>
<td>CPM</td>
<td>Critical Path Method</td>
</tr>
<tr>
<td>EMIS</td>
<td>Education Management Information System</td>
</tr>
<tr>
<td>FATA</td>
<td>Federally Administered Tribal Area</td>
</tr>
<tr>
<td>GB</td>
<td>Gilgit Baltistan</td>
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<tr>
<td>GER</td>
<td>Gross Enrolment Ratio</td>
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<td>HR</td>
<td>Human Resources</td>
</tr>
<tr>
<td>KPK</td>
<td>Khyber Pahktun Khawa</td>
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<tr>
<td>NEMIS</td>
<td>National Education Management Information System</td>
</tr>
<tr>
<td>NER</td>
<td>Net Enrolment Ratio</td>
</tr>
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<td>NIPS</td>
<td>National Institutes of Population Study</td>
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<tr>
<td>NREL</td>
<td>Northwest Regional Education Laboratory</td>
</tr>
<tr>
<td>OECC</td>
<td>Oregon Education Coordinating Council</td>
</tr>
<tr>
<td>PERT</td>
<td>Project Evaluation and Review Technique</td>
</tr>
<tr>
<td>SWOT</td>
<td>Strengths, Weaknesses, Opportunities and Threats</td>
</tr>
<tr>
<td>WBS</td>
<td>Work Breakdown Structure</td>
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</table>

HOW TO USE THIS MANUAL

Who is the Manual for?

This manual has been produced for education planners and managers. The intent of the manual is three fold: First and foremost, a complete workshop on “Use of Data for Planning and Management” can be developed using this manual, and there are clear instructions to the trainers at the start of each session about what to do and how much time to spend on each activity; Secondly, it can be used as primary reference material during training workshops, in which case it provides an extended view to the participants about each topic covered in the workshop; and lastly, it can be used as a guide to planning and management, and in this role it can be used by everybody interested in learning the key concepts, methodologies, tools and techniques.

We recognize that all those with a stake in the outcomes of a program or project must have a role in setting and delivering its objectives. For this reason, it is important that this manual is seen by all those involved in planning and management, at different levels, as a source of information and guidance. The manual has been designed as a practical guide and should be particularly useful for anybody involved in a program or project in any sort of coordination, management or governance capacity.

How can I use the Manual?

The manual follows a project life cycle management approach. Ideally, users should follow the manual from beginning to end, but we recognize that some may wish to use only specific sections that are most relevant to their immediate needs. The Manual is divided into eight sessions. For those at the early stage of thinking about the potential of educational planning and management, Session 1: Introduction to Educational Planning and Management provides an overview of planning and management in education sector. The session also describes the role of planners and the process of planning.

Practitioners already having basic knowledge of educational planning and management should turn to Session 2, where they will be introduced to the prerequisites for educational planning and management. The practitioners will also learn why use of data
is essential for any serious planning and management exercise, as well as what are main types and sources of such data in Pakistan.

**Session 3: Educational Planning Models** is intended for educational planners at the highest level, with a view to enabling the planner in choosing the model most suitable for their specific needs. This session could also be helpful for the practitioners who wish to learn the foundations on which particular models are built. In this session different models used for educational planning are discussed.

Readers of the manual who are at the stage of developing their strategic plan can turn to **Session 4: Strategic Planning**. This session describes the fundamentals of a strategic plan and its major components. Strategic planning in the context of education sector is discussed and the session explains how to develop educational plans through computer simulation. A computer simulation model, EPSSim is presented at the end of the session.

**Session 5: Tactical Planning**, is useful for the readers who have already developed their strategic plan and now wish to focus on medium term objectives in light of the strategic plan. This session emphasizes upon tactical planning in education sector and the methodology to be adopted for development of a tactical plan. At the end of this session, the procedure of developing a PC-1 in the education sector is presented.

Readers who wish to develop short term, concrete and ready for implementation plans in light of their tactical plans, **Section 6: Operational Planning**, provides guidance on preparation of operational plan and explains its importance during planning process. A technique especially useful during operational planning as well as subsequent management, PERT/CPM, is explained at the end of this session with an example.

**Session 7**, introduces some of the advanced techniques and computer based tools used during planning and management. Although a wide collection of such tools and techniques are available, for the purposes of brevity, the manual gives an overview of the SWOT analysis and MS Project. They are explained with suitable examples related to education sector.
The final session of the manual, *Group Work*, emphasizes on application of the knowledge acquired during the earlier sessions. The focus here is on problem solving through group work and applying and evaluating various methods, techniques and skills. Suitable case studies/assignments have been prepared and the practitioners are required to apply their newly acquired skills towards solution of problems.

**What is the Manual’s underlying methodology/philosophy?**

The manual aims to strike the right balance between theory and practice, therefore, each session begins by building the theoretical foundations. Well established methods, techniques and tools are presented next, prior to demonstrating their practical applications with examples and case studies.

**Feedback is encouraged**

This manual is a work-in-progress. We would be grateful for feedback from you regarding your experience of using the manual; where you have found it useful, and where you feel there is room for improvement. If you have cases of good practice you would like to report or suggestions for improving the manual, we would be particularly interested to hear from you.

**Contact**

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: +92 (51) 285 7066
SESSION 1

INTRODUCTION TO EDUCATIONAL PLANNING AND MANAGEMENT

Objectives:

At the end of the session participants will be able to

- Understand the fundamentals of Planning and Management
- Understand the role of planning and management in education sector
- Value the importance of data for educational planning and management

What we will learn

- Core Concepts of planning and management
- Use of data for educational planning and management
- Educational planning and management in Pakistan

Total Time: 1 hour and 30 minutes

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
<th>What is needed?</th>
</tr>
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<tbody>
<tr>
<td>1. Pre-Training Test</td>
<td>20 Minutes</td>
<td>Test on fundamentals</td>
</tr>
<tr>
<td>2. Prepare Presentation on Planning and Management, Educational Planning and the Pakistani perspective.</td>
<td>1 Hour</td>
<td>Presentation on Slides</td>
</tr>
<tr>
<td>3. Discussion</td>
<td>10 Minutes</td>
<td>Key points</td>
</tr>
</tbody>
</table>

Introduce the Objectives of the session and the activities.

Activity 1:

- Take pre-training test to assess the knowledge of participants about basics.

Activity 2:

- Make the presentation on Planning and Management, Educational Planning and the Pakistani perspective.

Activity 3:

- Hold a discussion on key concepts of planning and management
1. INTRODUCTION TO PLANNING AND MANAGEMENT

This session focuses on building the theoretical foundation in the area of planning and management. The key concepts in this area are discussed in the earlier sections, whereas the later sections discuss these concepts in the context of educational planning and management.

1.1 MANAGEMENT

Management is a social process, which is designed to ensure cooperation, participation, intervention and involvement of others in the effective achievement of given or determined objectives. Management may also be defined as: achieving goals in a way that makes the best use of all resources [26]. This definition covers self-management as well as managing people; it can also be defined as a process of getting activities completed efficiently and effectively with and through other people [27]. In light of above definitions, educational management is defined as a process of validating purposes and allocating resources to achieve the maximum attainment of purpose with the minimum allocation of resources [25].

Functions of Management:

Different experts have classified functions of management. But the most widely accepted are functions of management given by KOONTZ and O’DONNEL in their book “Principles of Management”. In this book, management is categorized into five functions [28]:

1. Planning
2. Organizing
3. Staffing
4. Directing
5. Controlling

For theoretical purposes, it may be convenient to separate the function of management but practically these functions are overlapping in nature i.e. they are highly inseparable. Each function blends into the other & each affects the performance of...
others. This manual will keeping all the functions in consideration, but would focus on the most important and basic function of management i.e., planning.

1.2 PLANNING

Planning is the basic function of management and it is a process of setting goals, developing strategies, and outlining tasks and schedules to accomplish the goals. It also refers to the process of deciding what to do and how to do it. Planning occurs at many levels, from day-to-day decisions made by individuals and families, to complex decisions made by businesses and governments. This manual focuses on educational planning, but most principles described here apply to any planning activity.

Role of Planners

_Planners_ are professionals who facilitate decision-making. Planners do not make decisions themselves; rather, they support decision-makers (managers, public officials, citizens) by coordinating information and activities. Their role is to create a logical, systematic decision-making process that results in the best actions.

In their role as objective negotiators, planners are often in the middle of conflicts. They often have the most knowledge about a project and the likely impacts of a particular decision, and so are often responsible for anticipating unintended consequences and representing the interests of people who are underrepresented in the decision-making process, such as children, the poor and future generations.

1.3 PLANNING PRINCIPLES [29]

Good planning requires a methodical process that clearly defines the steps that lead to optimal solutions. This process should reflect the following principles:

- **Comprehensive** – all significant options and impacts are considered.
- **Efficient** – the process should not waste time or money.
- **Inclusive** – people affected by the plan have opportunities to be involved.
- **Informative** – results are understood by stakeholders (people affected by a decision).
• Integrated – individual, short-term decisions should support strategic, long-term goals.
• Logical – each step leads to the next.
• Transparent – everybody involved understands how the process operates.

A principle of good planning is that individual, short-term decisions should support strategic, long-term goals. This requires comprehensive evaluation and negotiation to help people accept solutions that may seem difficult and costly in the short-term.

Good planning is insightful, comprehensive and strategic. Planners should strive to truly understand problems, not just a single perspective or manifestation. Effective planning requires correctly defining problems and asking critical questions. A planning process should not be limited to the first solution proposed or the concerns of people who attend meetings.

Planning requires preparing for a future that is often impossible to predict, and so must incorporate uncertainty. Forecasts should usually describe ranges and probabilities rather than point estimates, and plans should usually incorporate contingencies. Such contingency-based plans can include various actions, some to be implemented only if future conditions require.

Planning is a social activity – it involves people. Successful planning requires effective involvement of stakeholders. Planners should be prepared to work with people from diverse backgrounds, interests and abilities.

Planning increasingly incorporates the concept of sustainability, which refers to comprehensive, strategic planning that explicitly considers long-term and indirect impacts, such as those in Table 1.1. Sustainability planning strives for development (increased quality) rather than growth (increased quantity), and recognizes resource constraints and ecological risks.
### 1.4 PLANNING FRAMEWORK [30]

A planning framework defines the basic planning process structure. This typically includes the following components.

- **Principles** – A basic rule or concept used for decision-making.
- **Vision** – A general description of the desired result of the planning process.
- **Problem** – An undesirable condition to be mitigated (solved, reduced or compensated).
- **Goals** – A general desirable condition to be achieved, usually too general to be quantified, such as wealth, health, equity and freedom.
- **Objectives** – Specific, potentially quantifiable ways to achieve goals.
- **Targets or standards** – Quantitative levels of objectives to be achieved
- **Performance indicators** – Practical ways to measure progress toward objectives
- **Plans** – A scheme or set of actions. This may be a strategic (general and broad) or an action (specific and narrow) plan.
- **Options** – Possible ways to achieve an objective or solutions to a problem.
- **Policies or strategies** – A course of action implemented by a jurisdiction or organization
- **Programs** – A specific set of objectives, responsibilities and tasks within an organization.
- **Tasks or actions** – A specific thing to be accomplished
- **Scope** – The range (area, people, time, activities, etc.) to be included in a process.
- **Evaluation criteria** – The impacts (costs and benefits) considered in an analysis.
• *Evaluation methodology* – The process of valuing and comparing options, such as cost effectiveness, benefit/cost, or lifecycle cost analysis.

### 1.5 GENERIC PLANNING PROCESS [29]

Below is a generic planning process suitable for most decision-making. This can be adjusted to reflect a particular situation’s needs.

1. Establish the basic planning framework, including scope, stakeholders, schedule, etc.
2. Invite stakeholder input to share ideas and concerns.
3. Create a vision, goal or problem statement.
4. Develop a list of possible options (also called solutions) using various information resources (brainstorming, publications, websites, experts, etc.).
5. Evaluate and prioritize options from best to worst.
6. Create a *Plan* which identifies who does what, when and how. This may include a long term *strategic plan*, and short-term *action plans*. It may include contingency options that are only implemented if warranted by future conditions.
7. Gather baseline data (data collected before plan is implemented).
8. Implement policies and programs.
9. Evaluate program (gather data after program is implemented to determine whether it is achieving objectives as expected).
10. Revise plan as appropriate.

Often, this process must be adjusted to reflect specific conditions. For example, a particular planning process may have its scope, stakeholders, problem statement or goals already defined. In some situations, a proposed plan may require several cycles of development and adjustment due to changing conditions or as stakeholders gain a better understanding of the issues. Sometimes the planning process faces a barrier that requires revisiting basic assumptions (such as the scope, problem statement or goals), or adjusting the process. In such situations, planning requires flexibility, responsiveness, creativity and an ability to prioritize, in order to achieve progress.
1.6 TYPES OF PLANNING

There are three major types of planning, they types will be discussed in detail in coming sessions of the manual.

1. Strategic Planning
2. Tactical Planning
3. Operational Planning

**Strategic Planning**

It is also known as long term planning. Strategic planning is a process to establish priorities on what you will accomplish in future and forces you to make choices on what you will do and what you will not do. Strategic plan also gives a broad outline on where resources will get allocated. For example, five years educational plans developed by planning commission of Pakistan. Strategic planning will be discussed in detail in Session 4.

**Tactical Planning**

It is also known as medium term planning. The tactical plan focuses on programmes rather than projects; such a plan shows a detailed breakdown of the relationships between the major components. Subsequent sub-program/project level tactical plans are based on it and any later amendments should be highlighted. For example, in Pakistan, the present method for tactical planning related to development projects is based on the "Rules of Procedure for Economic Council", Planning Commission and Planning Sub-Commissions, issued by the former Ministry of Economic Affairs, Government of Pakistan in September, 1952. We will discuss tactical planning in Session 5.

**Operational Planning**

Operational plan, also known as short term plan, focuses on the lowest level of details. It defines the mechanism to operate in practice, and the way to implement action and monitoring plans – what are the capacity needs, how to engage resources,
how to deal with risks, and how to ensure sustainability of the project’s achievements. For example, operational plans can be prepared with the help of PERT/CPM as discussed in Session 6.

1.7 ELEMENTS OF A PLAN [4]

A complete plan should have the following elements:

- Objectives
- Outputs
- Quality criteria
- Resources
- Management structure
- Milestones
- Tolerances
- Dependencies
- Risks
- Schedule

Objectives

The objectives of the project are combination of the reasons for doing the project and the benefits that are expected from it, i.e. What do we want to produce?

Outputs

Given the objectives of the project, what do we actually need to produce to get there? What will your completed project comprise of? These need to be clearly defined.

Quality Criteria

Now we have the outputs, we need to understand what quality they need to be of. This means we need the completed output to be of a certain quality, and we need to define what that quality is. These targets tell you what success is, what completion of the project is. They need to be SMART:
• **Specific**
• **Measureable**
• **Attainable**
• **Relevant**
• **Time-based**

**Resources**

We have now set down what outputs we need to produce, and what quality they need to be at. This means we are now in a position to look at the resources we will need to achieve this. Resources include staff time, particular knowledge or skill sets, money (e.g. buying equipment), and time.

**Management structure**

At this point we will define a management team who will manage the project work and assign roles to each team member. Who will be the decision makers for the various different streams of work? For example, you may be doing a significant procurement - who makes the decision about what company to buy from?

**Milestones**

Here you need to think about how you will break up the project. Unless it is very small, you don’t want to have the entire project as one lump of work, with the only check on progress at the very end. Instead, it makes sense to break the project up into discrete chunks, where related tasks can be lumped together, with a sensible milestone at the end of them.

**Tolerances**

You will have already looked at the resources you need. Now we need to set how far you, or the project executive, can let the project stray from these targets before needing to sound the alarm. For example, you could set a tolerance in terms of finance of +/- 5%, and a tolerance in terms of time of +/- 10%. Equally, you may want to look at tolerances of quality - i.e. how far from the quality criteria are you willing to accept?
Dependencies

This is where you look at what needs to happen before the next step. These dependencies should include both those internal to the project (i.e. those under your control), and those external to it (i.e. those outside of your control).

Risks

Simply put risks are meant to identify what could go wrong. What could happen that would damage your ability to deliver the project? Are there things you can do to avoid risks, or minimize them?

Schedule

This is the Gantt chart-style information that many people envisage when a project plan is mentioned. In this, you need to put down what you expect to happen when. It will include your dependencies, milestones, and probably resources. At this point, it will be a relatively high overview of the whole project.

1.8 EDUCATIONAL PLANNING

Educational planning and decision-making, like planning in other social sectors, is a complex, interactive process involving many policy-making, technical, and administrative bodies at the National and Provincial levels.

The general purpose of national educational planning in any country is to assist and facilitate the development of the educational system. At minimum, this task includes: linking education to the economy, culture, and society; maintaining the integrity of the system in order that the different levels and kinds of education reinforce one another; and, developing a system which monitors its own performance and responds accordingly. The educational planning process typically includes the interaction of sets of activities and feedback loops, including: an articulated vision of the future education sector; creation of the setting of objectives; the review of existing educational policies and consideration of needed new ones; explication of programs, projects and targets; and, assessment of needed human, fiscal and physical resources.
Simple as well as complex methodologies are available to assist each stage in the process. Effective planning requires relevant and reliable data, both as feedback to assist system adjustments, and also to allow meaningful budget development. Matching priorities to a feasible budget is a crucial step in the process without which planning has little potential for influencing change [5].

1.9 THE EDUCATIONAL PLANNING PROCESS

The educational plans are conceived, prepared, carried out and evaluated in different phases. These phases come in the following sequence:

- Pre-planning
- Planning
- Plan formulation
- Plan elaboration
- Plan implementation
- Plan evaluation

The educational plan gives a direction and general orientation of the development foreseen in education sector. The 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, the plan document is not sufficiently detailed to guide the implementation of the plan. After the plan formulation phase, objectives have to be specified further; the major activities to achieve these objectives will have to be identified; person in-charge of the administration has 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 programs and projects [6].
1.10 EXAMPLES OF 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:

1. Expanding the education system. this will include:
   a. Increase in the output of qualified manpower
   b. Increase in the opportunities for general education
2. Improving the quality of education. This will include
   a. Increasing the number and/or quality of qualified teachers
   b. Improving the quality of support facilities/infrastructure
   c. Improvement in the text books, curriculum content etc.
3. Development of planning and management capacities in the field of education.

Projects can also be classified according to the type of activities or inputs e.g.:

- School construction
- Staff training
- Textbook development
- Research projects
- Development of audio-visual aids

1.11 EDUCATION PLANNING IN PAKISTAN

This manual emphasizes the development of realistic, cost effective, and implementable plans for national development. The use of well established principles, frameworks, methodologies, tools and techniques are a pre-requisite for successful plan development. Equally important is availability and use of accurate, reliable and timely data to aid the planning process. Detailed and concrete implementation plans, supported by well thought-out monitoring, supervision and evaluation mechanisms are required for successful plan implementation. However, history indicates that most of the education plans in Pakistan were more of an optimistic wish list, and the same objectives were repeated again and again in succeeding plans with minimal success.
SESSION 2

DATA: A PREREQUISITE FOR EDUCATIONAL PLANNING AND MANAGEMENT

Objectives:

At the end of the session, participants will be able to understand the importance of following pre-requisites for educational planning and management:

- Demographic information
- Educational statistics
- Education budgets
- Human resource information

What we will learn

- The prerequisites for educational planning
- How demographic projections are made, education statistics presented, education budgets allocated, and how to keep the human resource potential in perspective.

Total Time: 1 hour and 30 minutes

<table>
<thead>
<tr>
<th>Duration</th>
<th>Activity</th>
<th>What is needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hour 10 Minutes</td>
<td>1. Prepare the presentation highlighting the role of data in educational Planning and Management</td>
<td>- Presentation on Slides</td>
</tr>
<tr>
<td>20 Minutes</td>
<td>2. Discussion</td>
<td>- Key points</td>
</tr>
</tbody>
</table>

Introduce the Objectives of the session and the activities

Activity 1:

- Make the presentation on role of data in Educational Planning and Management

Activity 2:

- Hold a discussion: “Importance of data for educational planning”
- Sum up the points.
2. DATA: A PREREQUISITE FOR EDUCATIONAL PLANNING AND MANAGEMENT

The availability of accurate, valid, reliable, and timely information is a prerequisite for planning and management in any sector. Educational planning and management is no exception, it requires the availability and use of a diverse set of data for effective planning and successful management. To plan and manage in education sector, the following information should be available.

1. Demographic information
2. Educational statistics
3. Budget allocations for education sector
4. Human resource in education sector

2.1 DEMOGRAPHIC INFORMATION

It is vital for education planners and decision-makers to know the structure and distribution of the population at a given time frame, as well as how it has changed in recent years. In other words, educational planning and management cannot be divorced from considerations about dynamics of population (i.e., its growth and change), as it deals with a ‘target population’ which is constantly changing in number, age and sex composition, and geographic distribution [7].

Significant variations in the age and sex compositions of the population besides the numerical increase can be observed as a result of population growth. Migration of people determines their geographical distribution and this too, has a significant impact on the needs of the society. All these affect educational development in a direct manner. In fact, the findings of demography are one of the foundations on which educational plans are built and for this reason, planners should have sufficient knowledge of demographic methods and concepts, their meanings and limitations. Nearly all quantitative analyses and estimates of the qualitative aspects of education are related to population - its size, structure, location, dynamics and prospects. Hence there is need to study demographic aspects of educational planning and management.
Population Structure and its Effects on Educational Planning

Educational planners and managers may be concerned with the distribution of the population for various reasons:

- They may be interested in its distribution by age and sex.
- They may be concerned with the distribution of the population by sector of economic activity and, within each of these sectors, by occupation.
- They may be concerned with the geographical distribution of the population, which affects both the cost of education and the choice of types, sizes and locations of schools.

The age structure of the population is very important in demographic analysis because it provides a sort of summary of the demographic history of the nation, and also due to the fact that it governs to some extent, the future growth of the population. It also enables to estimate the relative size of the school-age population and to calculate the school enrolment rates which are very helpful for education planners before planning a new project in education sector.

The population structure by age of Pakistan is shown in table 2.1:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14 years</td>
<td>35.4%</td>
</tr>
<tr>
<td>15-64 years</td>
<td>60.4%</td>
</tr>
<tr>
<td>65 years and over</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Table 2.1: Population structure by age (Source: The World Fact book 2011)

The above table provides the distribution of the population according to age. The age structure of a population affects a nation's key socioeconomic issues. Countries with young populations (high percentage under age 15) need to invest more in schools, while countries with older populations (high percentage ages 65 and over) need to invest more in the health sector. The age structure can also be used to help predict potential political issues. For example, the rapid growth of a young adult population unable to find employment can lead to unrest [9].
Population Growth and Its Impact on Educational Planning and Management

The educational planners and managers are not content with knowing the current situation; they are also interested in getting an accurate picture of the problems to be encountered in the future. In particular, they must know how the population will change in future years.

The population of any place at a specific time is a function of three types of events - births, deaths and migration and consequently, there are four ways in which the number of people of any area may change; (i) Children may be born in that area; (ii) The inhabitants of that area may die; (iii) People from other areas may move into that area (In-migration); and (iv) Inhabitants of that area may move out (out-migration).

These components of population change namely births, deaths and migration are identified as fertility, mortality and migration respectively and are known as demographic or population variables because the size, growth, structure and distribution of any population are determined by them. A study of any population is made through a study of these demographic variables. The change in population can be measured by (a) The difference between population sizes at different times (known as growth which results in either increase or decrease) (b) The analysis of the 4 components of population namely births, deaths, immigration & emigration.

The growth, birth and death rate of population in Pakistan is shown in following table 2.2:

<table>
<thead>
<tr>
<th>Population Growth rate in Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth rate</td>
</tr>
<tr>
<td>Birth rate</td>
</tr>
<tr>
<td>Death rate</td>
</tr>
</tbody>
</table>

Table 2.2: Population Growth (Source: The World Fact book 2011)

The population growth rate from 2000 to 2011 is shown in figure 2.1
The projected population by age and sex at national level is reflected in the table 2.3, this projection is made by National Institute of Population Studies NIPS. The same projection is also made at provincial level and it is available for public use. The population projection of next 12 years is also available for planning and decision making.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Population</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pakistan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-4</td>
<td>18,293,680</td>
<td>9,541,580</td>
<td>8,752,100</td>
</tr>
<tr>
<td>5-9</td>
<td>18,330,450</td>
<td>9,583,090</td>
<td>8,747,360</td>
</tr>
<tr>
<td>10-14</td>
<td>18,758,040</td>
<td>9,757,090</td>
<td>9,000,950</td>
</tr>
<tr>
<td>15-19</td>
<td>19,622,691</td>
<td>10,120,500</td>
<td>9,502,191</td>
</tr>
<tr>
<td>20-24</td>
<td>19,268,600</td>
<td>9,439,420</td>
<td>9,829,180</td>
</tr>
<tr>
<td>25-29</td>
<td>16,409,840</td>
<td>8,497,670</td>
<td>7,912,170</td>
</tr>
<tr>
<td>30-34</td>
<td>13,690,590</td>
<td>7,101,570</td>
<td>6,589,020</td>
</tr>
<tr>
<td>35-39</td>
<td>10,936,740</td>
<td>5,682,390</td>
<td>5,254,350</td>
</tr>
<tr>
<td>40-44</td>
<td>8,804,500</td>
<td>4,578,250</td>
<td>4,226,250</td>
</tr>
<tr>
<td>45-49</td>
<td>6,891,910</td>
<td>3,582,450</td>
<td>3,309,460</td>
</tr>
<tr>
<td>50-54</td>
<td>5,483,230</td>
<td>2,843,410</td>
<td>2,639,820</td>
</tr>
<tr>
<td>55-59</td>
<td>4,280,300</td>
<td>2,211,830</td>
<td>2,068,470</td>
</tr>
<tr>
<td>60-64</td>
<td>3,368,860</td>
<td>1,733,140</td>
<td>1,635,720</td>
</tr>
</tbody>
</table>
In order to demonstrate the importance of demographic information for educational planning we will take an example of a program: “Increase Female Enrolment to 100% in Primary Level of Education by 2015”. This program will also be used as an example in rest of the sessions of the manual while discussing different aspects of educational planning. In view of demographic aspect the planner must know the expected female population of age group 5-9 in coming years up to 2015 in all the provinces of the country as shown in table 2.4.

<table>
<thead>
<tr>
<th>Year</th>
<th>Punjab</th>
<th>Sindh</th>
<th>KPK</th>
<th>Balochistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>4,687,262</td>
<td>1,889,741</td>
<td>1,337,000</td>
<td>506,122</td>
</tr>
<tr>
<td>2012</td>
<td>4,668,700</td>
<td>1,876,467</td>
<td>1,356,279</td>
<td>515,868</td>
</tr>
<tr>
<td>2013</td>
<td>4,638,134</td>
<td>1,856,000</td>
<td>1,370,653</td>
<td>523,465</td>
</tr>
<tr>
<td>2014</td>
<td>4,597,029</td>
<td>1,835,449</td>
<td>1,377,630</td>
<td>528,214</td>
</tr>
<tr>
<td>2015</td>
<td>4,556,250</td>
<td>1,815,272</td>
<td>1,378,172</td>
<td>530,059</td>
</tr>
</tbody>
</table>

Table 2.4: Age and gender wise population (Source: NIPS)

2.2 EDUCATIONAL STATISTICS

According to Tippest; “Planning is the order of the day and without statistics planning is inconceivable” [11]. Statistics are of prime importance in educational planning and management. Priorities of planning are determined on the basis of the statistics relating to resource base of the country and the short-term and long-term needs of the country. Success and failure of planning and management is measured in terms of statistical facts and figures.

Usefulness and importance of educational statistics can be measured by the functions performed by it. Progress in the field of education is measured in terms of the National Education Management Information System (NEMIS)
literacy rate of population, number of schools, colleges and universities in the country and the number of students studying therein. Shortcomings of education system are known from the data relating to examination results of the students. Data concerning male and female education, adult education, etc. is necessary for education planning and policy making. Statistics regarding teacher-pupil ratio, number of students in each class, number of books issued to the students, etc. are of great significance in educational planning for introducing education reforms.

An Educational plan should be based on a precise and exact diagnosis if it is to be effective. The diagnosis makes the plan possible to take into account the state of education, and identify the problems through a detailed and critical analysis in order to propose solutions. An accurate diagnostic of the education system is possible with the help of timely and transparent data as well as sound statistical analysis. The most important system designed to support educational planning and management is Education Management Information System (EMIS).

EMIS is a data collection, storage, retrieval, processing and dissemination system specially designed for use by decision makers and administrators to plan and administer education system more efficiently and effectively.

Statistics in any field of education is very important. Figure 2.2 reflects the role of statistics in development of quality in education.

Let's take our example of “Increase female enrolment to 100% in Primary Level of Education by 2015” to demonstrate how prior knowledge of educational statistics plays a vital role in education planning. Before development of plan, the planner should know the current status of female enrolment in primary level of education. As mentioned earlier in session-I that the major source of educational statistics in Pakistan is NEMIS. The province wise female enrolment in primary level of education is shown in table 2.5.

The educational planners can plan new schools to capture female students with the help of prior demographic information and available educational statistics. The time series data for educational planning is also available in National EMIS.
Figure 2.2: Role of statistics in development of quality in education (Source: EFA Global Monitoring Report 2000)

Table 2.5: Enrolment at Primary level of Education 2008-09 (Source NEMIS)
Educational statistics are also very helpful for educational planners towards opening of new education institutions. For example, if the Government is planning to open new primary schools, the planner should take data of existing primary schools then plan new institutions in the area where no primary schools are available.

<table>
<thead>
<tr>
<th>Province</th>
<th>Gender</th>
<th>Public Urban</th>
<th>Public Rural</th>
<th>Private Urban</th>
<th>Private Rural</th>
<th>Total Urban</th>
<th>Total Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>Boys</td>
<td>2,089</td>
<td>23,943</td>
<td>2,581</td>
<td>2,604</td>
<td>4,670</td>
<td>26,547</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>2,065</td>
<td>20,480</td>
<td>2,597</td>
<td>2,687</td>
<td>4,662</td>
<td>23,167</td>
</tr>
<tr>
<td>Sindh</td>
<td>Boys</td>
<td>3,231</td>
<td>31,375</td>
<td>1,097</td>
<td>210</td>
<td>4,328</td>
<td>31,585</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>1,762</td>
<td>8,150</td>
<td>1,101</td>
<td>299</td>
<td>2,863</td>
<td>8,449</td>
</tr>
<tr>
<td>KPK</td>
<td>Boys</td>
<td>798</td>
<td>13,906</td>
<td>337</td>
<td>834</td>
<td>1,135</td>
<td>14,740</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>518</td>
<td>7,113</td>
<td>336</td>
<td>825</td>
<td>854</td>
<td>7,938</td>
</tr>
<tr>
<td>Balochistan</td>
<td>Boys</td>
<td>709</td>
<td>7,034</td>
<td>99</td>
<td>128</td>
<td>808</td>
<td>7,162</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>277</td>
<td>2,648</td>
<td>89</td>
<td>105</td>
<td>366</td>
<td>2,753</td>
</tr>
<tr>
<td>GB</td>
<td>Boys</td>
<td>40</td>
<td>663</td>
<td>35</td>
<td>251</td>
<td>75</td>
<td>914</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>55</td>
<td>541</td>
<td>37</td>
<td>263</td>
<td>92</td>
<td>804</td>
</tr>
<tr>
<td>FATA</td>
<td>Boys</td>
<td>-</td>
<td>2,434</td>
<td>-</td>
<td>131</td>
<td>-</td>
<td>2,565</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>-</td>
<td>1,917</td>
<td>-</td>
<td>72</td>
<td>-</td>
<td>1,989</td>
</tr>
<tr>
<td>AJ&amp;K</td>
<td>Boys</td>
<td>98</td>
<td>2,232</td>
<td>42</td>
<td>271</td>
<td>140</td>
<td>2,503</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>85</td>
<td>1,804</td>
<td>42</td>
<td>277</td>
<td>127</td>
<td>2,081</td>
</tr>
<tr>
<td>ICT</td>
<td>Boys</td>
<td>49</td>
<td>91</td>
<td>32</td>
<td>50</td>
<td>81</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>13</td>
<td>53</td>
<td>31</td>
<td>49</td>
<td>44</td>
<td>102</td>
</tr>
<tr>
<td>Total</td>
<td>Boys</td>
<td>7,014</td>
<td>81,678</td>
<td>4,223</td>
<td>4,479</td>
<td>11,237</td>
<td>86,157</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>4,775</td>
<td>42,706</td>
<td>4,233</td>
<td>4,577</td>
<td>9,008</td>
<td>47,283</td>
</tr>
</tbody>
</table>

Table 2.6: Institutions by Gender and Location (Source NEMIS)

Data of teachers is also very important in planning for the transfer of teachers or for the appointment of new teachers. With the help of availability of data the planners can plan the need of new teachers in future and transfer of existing teachers where teachers are required. For example the following data can be helpful for this purpose:

<table>
<thead>
<tr>
<th>Province</th>
<th>Level</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>Primary</td>
<td>66,527</td>
<td>59,052</td>
<td>125,579</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>31,436</td>
<td>39,645</td>
<td>71,081</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>55,662</td>
<td>34,583</td>
<td>90,245</td>
</tr>
<tr>
<td></td>
<td>Higher Sec</td>
<td>7,029</td>
<td>5,843</td>
<td>12,872</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>160,654</td>
<td>139,123</td>
<td>299,777</td>
</tr>
<tr>
<td>Sindh</td>
<td>Primary</td>
<td>72,692</td>
<td>28,307</td>
<td>100,999</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>6,349</td>
<td>4,237</td>
<td>10,586</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>16,242</td>
<td>10,647</td>
<td>26,889</td>
</tr>
<tr>
<td></td>
<td>Higher Sec</td>
<td>4,405</td>
<td>2,216</td>
<td>6,621</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>99,688</td>
<td>45,407</td>
<td>145,095</td>
</tr>
<tr>
<td>KPK</td>
<td>Primary</td>
<td>45,600</td>
<td>24,991</td>
<td>70,591</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>9,737</td>
<td>5,268</td>
<td>15,005</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>16,182</td>
<td>5,198</td>
<td>21,380</td>
</tr>
<tr>
<td></td>
<td>Higher Sec</td>
<td>5,405</td>
<td>1,983</td>
<td>7,388</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>76,924</td>
<td>37,440</td>
<td>114,364</td>
</tr>
<tr>
<td>Balochistan</td>
<td>Primary</td>
<td>12,411</td>
<td>5,491</td>
<td>17,902</td>
</tr>
</tbody>
</table>

National Education Management Information System (NEMIS)
The above teacher’s information and much more data about teachers is available in National and Provincial/Regional EMIS cells.

Education for All (EFA) is a global movement led by UNESCO, aiming to meet the learning needs of all children, youth and adults by 2015. The EFA goals also contribute to the global pursuit of the six Millennium Development Goals (MDGs). A comprehensive plan is required to achieve targets of EFA goals by 2015. The planners must know the current situation of the EFA indicators for future planning. For example the figure 2.3 reflects the GER in primary level of education in 2008-09.
Similarly, data for other EFA indicators is also available in National EMIS for planning purposes.

### 2.3 BUDGET ALLOCATIONS FOR EDUCATION SECTOR

Budget plays an important role in the planning and management process. The budget is a tool that helps to achieve the projects’ or programs’ goals. Proper financing is essential for overall planning and management of education sector. Education consumes large sums of money and especially in developed and in some developing countries, it received a higher proportion of public budgets than other services. No educational plan can be implemented unless adequate funds are made available for the purpose. It is, therefore, necessary to assess the financial implications of an educational plan before embarking upon implementation process.

Planning involves working out how to achieve the maximum possible with the available budget. Educational planning is essentially concerned with the problem of how to make the best use of budget allocated for education. An assumption, therefore, is that financing of education is not only central to, but inseparable from educational planning.
The educational planners may have a prior knowledge of following allocation of budget for formulation of a successful educational plan

- Total Education Budget
- Distribution of education budget at federal, provincial and district levels
- Education Budget by Sub-sector
- Development and non-development budget
- Distribution of non-development budget by salary and non salary items

With this knowledge the planners will be able to budget for upcoming projects without any uncertainty. The budget information is available from Economic Survey of Pakistan and also available from provincial ministry of education. The development budget allocated for education is shown in table 2.8

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Projects</th>
<th>Allocation</th>
<th>Revised allocation</th>
<th>Funds released</th>
<th>Funds utilized</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>85</td>
<td>6,269,652</td>
<td>4,052,568</td>
<td>2,548,950</td>
<td>2,168,543</td>
</tr>
<tr>
<td>2009-10</td>
<td>101</td>
<td>8,097,613</td>
<td>5,500,000</td>
<td>3,353,405</td>
<td>3,231,000</td>
</tr>
<tr>
<td>2010-11</td>
<td>86</td>
<td>5,070,864</td>
<td>5,070.864</td>
<td>1,722,202</td>
<td>379,177</td>
</tr>
</tbody>
</table>

Table 2.8: Development Budget for Education (Source: Ministry of Education)

In Pakistan, investment in education has remained consistently low though various efforts have been made to improve the situation. During the last seven years, the education budget has witnessed a three-fold increase in absolute terms; however it is considerably less than a promised figure of 4% of GDP. Primarily the non-availability of adequate financial resources has made it difficult for Governments to launch and sustain large scale interventions and programmes in education sector.

The collection of statistical data on educational finance and expenditure can be looked at in two ways: firstly, from the view of the source of educational expenditure, secondly from the view of the distribution of funds dedicated to education. The distribution of funds, again, can be classified under two aspects: educational expenditure by purpose on the one hand and expenditure by level or type of education on the other hand.
Source of Finance:

Education is the main public enterprise which is financed mostly from public sources. Usually most of the funds allocated to education originate from the big pot of public revenue.

Expenditure by purpose:

A detailed breakdown of educational expenditure by purpose is necessary for three major purposes: for analysis, for forecasting and for unit cost calculations. The degree of differentiation of expenditure statistics depends on the national requirements are for educational planning and the availability of data. These requirements are very often in conflict with one another. A very crude breakdown, which is absolutely essential, distinguishes between recurring and capital expenditure.

Before using education finance statistics for analytical and forecasting purposes certain choices have to be made clear such as distinction between capital and recurring expenditure which often not clear. What is basically required is the calculation of expenditure at each level for each type of education, per unit cost of students, teachers salaries, non-teaching staff salaries and building etc. distinguishing between recurrent expenditure and its major components on the one hand and capital expenditure on the other. Further, the data on privately managed institutions is not available. Hence, in the absence of private sector education finance data the complete national picture is not emerged.

Ideally, statistics of educational expenditure should be closed accounts and thus provide data on actual expenditure. In the absence of these statistics, data on budget allocations can be used to assess the situation. The information gathered through any source whether in the form of actual expenditure or budget allocations, can be a basis for analysis and forecast of educational outlay to achieve particular targets of national education plan [20].

The information in following table (table 2.9) may be helpful for educational planners before planning a comprehensive educational plan:
International comparisons of educational outlay are currently used by educational planners and policy makers to measure the given country’s effort in the field of education. Educational expenditure per capita, as a percentage of total government expenditure and as a proportion of some national aggregate as concepts usually found in a comprehensive system of political and social indicators. The allocation of a high proportion of some aggregate is considered as indicating a satisfactory situation whereas the allocation of a low proportion seems to indicate the opposite. The following table reflects the comparison of public expenditure on education as percentage of GNP with different inter-continental countries (table 2.10):

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Country</th>
<th>Total Public Expenditure on education as % of GNP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maldives</td>
<td>7.5</td>
</tr>
<tr>
<td>2</td>
<td>Bhutan</td>
<td>5.6</td>
</tr>
<tr>
<td>3</td>
<td>Iran</td>
<td>4.7</td>
</tr>
<tr>
<td>4</td>
<td>India</td>
<td>3.8</td>
</tr>
<tr>
<td>5</td>
<td>Nepal</td>
<td>3.4</td>
</tr>
<tr>
<td>6</td>
<td>Pakistan</td>
<td>2.4</td>
</tr>
<tr>
<td>7</td>
<td>Bangladesh</td>
<td>2.4</td>
</tr>
<tr>
<td>8</td>
<td>Sri Lanka</td>
<td>Not reported</td>
</tr>
<tr>
<td>9</td>
<td>Afghanistan</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

Table 2.10: Source: EFA Global Monitoring Report 2008, UNESCO

Table 2.11 summarises the current and development budget allocated for public sector of education through different departments and ministries at federal level (source: Policy & Planning Wing, Ministry of Education, Islamabad. 2009-10).
Training Manual: Use of Data for Educational Planning and Management

<table>
<thead>
<tr>
<th>Federal Governments</th>
<th>Current</th>
<th>Development</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Education</td>
<td>3,718.670</td>
<td>8,097.610</td>
<td>11,816.280</td>
</tr>
<tr>
<td>Higher Education Commission</td>
<td>21,500.000</td>
<td>22,500.000</td>
<td>44,000.000</td>
</tr>
<tr>
<td>Federal Government Education Institutions in Cantonments &amp; Garrisons</td>
<td>1,929.760</td>
<td>14.910</td>
<td>1,944.670</td>
</tr>
<tr>
<td>Federally Administered Tribal Areas</td>
<td>4,143.716</td>
<td>1,534.318</td>
<td>5,678.034</td>
</tr>
<tr>
<td>Gilgit Baltistan</td>
<td>1,408.738</td>
<td>784.081</td>
<td>2,192.819</td>
</tr>
<tr>
<td>AJ &amp; K</td>
<td>3,794.450</td>
<td>722.000</td>
<td>4,516.450</td>
</tr>
<tr>
<td>Social Welfare &amp; Special Education Division (DG SE and PBM)</td>
<td>410.340</td>
<td>316.450</td>
<td>726.790</td>
</tr>
<tr>
<td>Cabinet Division</td>
<td>26.450</td>
<td>0.000</td>
<td>26.450</td>
</tr>
<tr>
<td>Establishment Division</td>
<td>80.728</td>
<td>250.000</td>
<td>330.728</td>
</tr>
<tr>
<td>Culture and Sports Division</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ministry of Scientific &amp; Technological Research</td>
<td>-</td>
<td>27.321</td>
<td>27.321</td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>10.145</td>
<td>-</td>
<td>10.145</td>
</tr>
<tr>
<td>IT &amp; Telecom Division</td>
<td>793.750</td>
<td>174.800</td>
<td>968.550</td>
</tr>
<tr>
<td>Ministry of Religious Affairs</td>
<td>29.290</td>
<td>-</td>
<td>29.290</td>
</tr>
<tr>
<td>Ministry of Water &amp; Power</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ministry of Communications</td>
<td>77.000</td>
<td>54.000</td>
<td>131.000</td>
</tr>
<tr>
<td>Ministry of Interior (including CDA)</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>National Commission for Human Dev.</td>
<td>190.080</td>
<td>2,149.790</td>
<td>2,339.870</td>
</tr>
<tr>
<td>Ministry of Defense</td>
<td>40.920</td>
<td>9.300</td>
<td>50.220</td>
</tr>
<tr>
<td>Ministry of Petroleum and Natural Resources (including PMDC)</td>
<td>192.190</td>
<td>85.170</td>
<td>277.360</td>
</tr>
<tr>
<td>Ministry of Labor and Manpower</td>
<td>808.820</td>
<td>270.000</td>
<td>1,078.820</td>
</tr>
<tr>
<td>Overseas Pakistanans Division</td>
<td>0.550</td>
<td>0.610</td>
<td>1.160</td>
</tr>
<tr>
<td>Ministry of Industries and Production</td>
<td>295.140</td>
<td>625.140</td>
<td>920.280</td>
</tr>
<tr>
<td>Ministry of Railways</td>
<td>68.220</td>
<td>17.200</td>
<td>85.420</td>
</tr>
<tr>
<td>Ministry of Zakat and Ushr incl. Baitul-maal</td>
<td>3,957.270</td>
<td>-</td>
<td>3,957.270</td>
</tr>
<tr>
<td>National Vocational &amp; Technical Education Commission</td>
<td>226.000</td>
<td>1,500.000</td>
<td>1,726.000</td>
</tr>
<tr>
<td>Total</td>
<td>43,702.23</td>
<td>39,132.70</td>
<td>82,834.93</td>
</tr>
</tbody>
</table>

Table 2.11: Financing of Education in the Public Sector (2008-09) *(Source: Ministry of Education)*

Budget allocated for public sector of education by provincial governments is shown in table 2.12
The districts governments also allocate budget for public sector of education as shown in table 2.13.

<table>
<thead>
<tr>
<th>Provincial Governments</th>
<th>Current</th>
<th>Development</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government of Punjab</td>
<td>21,183.707</td>
<td>22,954.589</td>
<td>44,138.296</td>
</tr>
<tr>
<td>Government of Sindh</td>
<td>13,919.081</td>
<td>6,020.000</td>
<td>19,939.081</td>
</tr>
<tr>
<td>Government of KPK</td>
<td>2,008.985</td>
<td>6,059.354</td>
<td>8,068.339</td>
</tr>
<tr>
<td>Government of Balochistan</td>
<td>2,411.730</td>
<td>2,421.133</td>
<td>4,832.863</td>
</tr>
<tr>
<td>Total (Province)</td>
<td>39,523.503</td>
<td>37,455.076</td>
<td>76,978.579</td>
</tr>
</tbody>
</table>

Table 2.12: Financing of Education by Provincial Governments (Source: Ministry of Education)

The above mention budget allocation can be used by educational planners while planning different educational projects in the public sector.

### 2.4 HUMAN RESOURCE

Before discussing the role of human resource in planning and management, we will explain the term human resource. First and foremost, people in work organizations, endowed with a range of abilities, talents and attitudes, influence productivity, quality and profitability. People set overall strategies and goals, design work systems, produce goods and services, monitor quality, allocate financial resources, and market the products and services. Individuals, therefore, become ‘human resources’ by virtue of the roles they assume in the work organization. Employment roles are defined and

National Education Management Information System (NEMIS)
described in a manner designed to maximize particular employees’ contributions to achieving organizational objectives [17].

In theory, the management of people is no different from the management of other resources of organizations. In practice, what makes it different is the nature of the resource, i.e. people. One set of perspective views the human being as potentially a creative and complex resource whose behaviour is influenced by many diverse factors originating from either the individual or the surrounding environment. Organizational behaviour theorists, for example, suggest that the behaviour and performance of the ‘human resource’ is a function of at least four variables: ability, motivation role, perception and situational contingencies. Another set of perspectives emphasizes the problematic nature of employment relations: (Watson, 1986). Human resources differ from other resources the employer uses, partly because individuals are endowed with varying levels of ability (including aptitudes, skills and knowledge), with personality traits, gender, role perception and differences in experience, and partly as a result of differences in motivation and commitment. In other words, employees differ from other resources because of their ability to evaluate and to question management’s actions and their commitment and co-operation always has to be won. In addition, employees have the capacity to form groups and trade unions to defend or further their economic interest. Human resource is often referred to as personnel, staff or workers.

A prior knowledge of available human resources with their skills, area of expertise, experience etc. is a key for development of educational plan. Every educational system at every level depends heavily on teachers for the execution of its programmes. For example, maintaining and improving educational standards is only possible through teachers. The teacher, therefore, is the most indispensable entity in the school. The teacher’s information is available in EMIS cells for planning purposes. An educational planner can get this information directly from EMIS cells or from online resources. For example, if Government starts a program to increase female enrolment in primary level of education, the planner must also know the number of female teachers working at primary level of education as shown in table 2.14.
### Table 2.14: Number of female teachers in primary level of education

(Source: NEMIS)

<table>
<thead>
<tr>
<th>Province/Region</th>
<th>Number of Female Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>59,052</td>
</tr>
<tr>
<td>Sindh</td>
<td>28,307</td>
</tr>
<tr>
<td>KPK</td>
<td>24,991</td>
</tr>
<tr>
<td>Balochistan</td>
<td>5,491</td>
</tr>
<tr>
<td>AJK</td>
<td>4,096</td>
</tr>
<tr>
<td>FATA</td>
<td>4,044</td>
</tr>
<tr>
<td>GB</td>
<td>1,100</td>
</tr>
<tr>
<td>ICT</td>
<td>1,693</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>128,774</strong></td>
</tr>
</tbody>
</table>

Teachers training institutions play a vital role in production of trained human resources for education sector; therefore, the education planners must consider the teachers training institutions and their enrolment for planning new projects as shown in table 2.15.

### Table 2.15: Enrolment in Teachers Training Institutions (Source: NEMIS)

<table>
<thead>
<tr>
<th>Province</th>
<th>Institutions</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>64</td>
<td>14,953</td>
<td>347,199</td>
<td>362,152</td>
</tr>
<tr>
<td>Sindh</td>
<td>68</td>
<td>3,412</td>
<td>4,271</td>
<td>7,683</td>
</tr>
<tr>
<td>KPK</td>
<td>83</td>
<td>2,970</td>
<td>4,366</td>
<td>7,336</td>
</tr>
<tr>
<td>Balochistan</td>
<td>29</td>
<td>1,271</td>
<td>1,337</td>
<td>2,608</td>
</tr>
<tr>
<td>AJK</td>
<td>17</td>
<td>2,013</td>
<td>619</td>
<td>2,632</td>
</tr>
<tr>
<td>GB</td>
<td>6</td>
<td>190</td>
<td>429</td>
<td>619</td>
</tr>
<tr>
<td>FATA</td>
<td>4</td>
<td>205</td>
<td>67</td>
<td>272</td>
</tr>
<tr>
<td>ICT</td>
<td>8</td>
<td>47,042</td>
<td>90,000</td>
<td>137,042</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>279</strong></td>
<td><strong>72,056</strong></td>
<td><strong>448,288</strong></td>
<td><strong>520,344</strong></td>
</tr>
</tbody>
</table>

The following table (table 2.16) presents a general picture of potential human resource base in the education sector. It provides the numbers as well the growth trends of tertiary level output from education system in Pakistan. This information could be vital for a long term (Strategic) plan relying on an increase in available human resource.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Year</th>
<th>Bachelor</th>
<th>Master</th>
<th>M. Phil.</th>
<th>PhD</th>
<th>PGD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>2001-02</td>
<td>156,141</td>
<td>66,675</td>
<td>3,683</td>
<td>3,061</td>
<td>2,841</td>
<td>232,401</td>
</tr>
<tr>
<td></td>
<td>2002-03</td>
<td>186,602</td>
<td>78,709</td>
<td>4,462</td>
<td>4,045</td>
<td>2,666</td>
<td>276,484</td>
</tr>
<tr>
<td></td>
<td>2003-04</td>
<td>252,841</td>
<td>92,613</td>
<td>6,802</td>
<td>6,277</td>
<td>3,595</td>
<td>362,128</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>279,301</td>
<td>97,845</td>
<td>7,098</td>
<td>5,768</td>
<td>2,255</td>
<td>392,267</td>
</tr>
<tr>
<td></td>
<td>2005-06</td>
<td>306,097</td>
<td>118,615</td>
<td>9,134</td>
<td>4,826</td>
<td>3,867</td>
<td>442,539</td>
</tr>
<tr>
<td></td>
<td>2006-07</td>
<td>380,350</td>
<td>147,015</td>
<td>11,321</td>
<td>5,019</td>
<td>4,793</td>
<td>548,498</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
<td>441,112</td>
<td>170,905</td>
<td>13,161</td>
<td>6,876</td>
<td>5,572</td>
<td>637,626</td>
</tr>
<tr>
<td></td>
<td>2008-09</td>
<td>476,056</td>
<td>184,444</td>
<td>14,204</td>
<td>7,421</td>
<td>6,013</td>
<td>688,138</td>
</tr>
<tr>
<td>Private</td>
<td>2001-02</td>
<td>30,340</td>
<td>11,854</td>
<td>188</td>
<td>63</td>
<td>1,428</td>
<td>43,873</td>
</tr>
<tr>
<td></td>
<td>2002-03</td>
<td>37,688</td>
<td>15,815</td>
<td>380</td>
<td>93</td>
<td>1,285</td>
<td>55,261</td>
</tr>
<tr>
<td></td>
<td>2003-04</td>
<td>42,871</td>
<td>16,054</td>
<td>652</td>
<td>195</td>
<td>1,336</td>
<td>61,108</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>47,781</td>
<td>16,069</td>
<td>495</td>
<td>286</td>
<td>744</td>
<td>65,375</td>
</tr>
<tr>
<td></td>
<td>2005-06p</td>
<td>53,586</td>
<td>22,302</td>
<td>1,296</td>
<td>313</td>
<td>1,437</td>
<td>78,934</td>
</tr>
<tr>
<td></td>
<td>2006-07p</td>
<td>62,196</td>
<td>25,870</td>
<td>1,503</td>
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Table 2.16: Year wise enrollment (Source: HEC published data)
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SESSION 3  EDUCATIONAL PLANNING MODELS

Objectives:

At the end of the session participants will be able to

- Understand different models used for educational planning

What we will learn

- The processes as well as the key features of various educational planning models

Total Time: 1 hours and 30 Minutes

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<td>Slides</td>
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<td>10 Minutes</td>
<td>2. Discussion</td>
<td>Key Points</td>
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Introduce the Objectives of the session and the activities

Activity 1:

Make the presentation on Education Planning Models

Activity 2:

- Hold a discussion: “Educational planning models”
- Sum up the points
3. EDUCATIONAL PLANNING MODELS [13]

3.1 INTRODUCTION

It is imperative that existing body of knowledge must be kept in view before embarking upon any major venture. A lot of research has been done in the area of educational planning, resulting in quite a few planning models being proposed. Keeping in view the importance of choosing the right model in a given situation, we are presenting the most widely acknowledge, accepted, and used models here. We begin by discussing the key concept of process first, and then follow it up by presenting the various processes used by these models.

A process is defined as the series of steps followed in doing an activity. These steps can be illustrated in graphical or symbolic terms. A planning process model supplies guidance in what ought to be done in practice. It also dictates explicitly what people ought to do in order for them to act accordingly and behave rationally so as to ascertain the successful completion of the process of activities (Miclat, 2005). The model, as presented in Figure 3.1, has six major steps. These are: a) goal-setting; b) situational information; c) policy/strategy formulation; d) plans/programs/projects; e) implementation; and f) evaluation (NEDA, 1993).

![Figure 3.1: Planning Process Model](image-url)
The model was later refined where the major steps were expanded into eight represented by circles arranged from left to right. The model, as shown in Figure 3.2, involves the following steps: 1) Situational analysis, 2) Goal/objective/target setting, 3) Policy/strategy formulation, 4) Program/project identification, 5) Investment programming, 6) Budgeting, 7) Implementation and monitoring and 8) Evaluation and plan update (NEDA, 2001).

![Figure 3.2: Advanced Planning Process Model](image)

The line segments below the figure refer to the managerial functions and activities that are undertaken for each step in the model. The first step in the model is the situational analysis which requires conducting of survey and research studies. The survey calls for the gathering of socio-cultural, demographic, economic, physical and natural data, and information in the environment. A survey of the organization has to be undertaken indicating past and present performances, programs and projects, manpower resources, budget, and infrastructures and equipment. The data are then analyzed and projected in order to identify concerns, issues and parameters, constraints and problems, and resources and opportunities which are used as inputs in planning. The outputs of these activities are the organizational profile and socio-economic profile of the community. The next step is the setting of goals, objectives and targets. A goal is a broad statement of an image of the future the organization seeks to achieve.

National Education Management Information System (NEMIS)
The objective, which grows from the goal, refers to medium-range expectation which is pursued to satisfy the goal. The target evolves from the objective. It is the most specific statement of purpose which is simple, measurable, time bound and achievable. Once the goals, objectives and targets are crafted, more specific policy statements and strategies are framed for each of the areas of concern, e.g. social, economic, physical, political and administration. The integration of these to a framework plan for a particular period, serves as a guide to the organization. Programs and projects are identified in order to effectively channel resources to development programs and projects considered strategic in the overall attainment of goals. Prioritization of programs and projects is determined done through the conduct of feasibility studies (Miclat, 2005).

Budgeting is the costing of priority programs and projects. Implementation is actual carrying out of funded programs and projects by concerned offices and individuals of the organization. Programs and projects are monitored to find out if they are implemented according to plan. Otherwise, corrective measures should be readily instituted to put back the project on track. Results, in terms of outputs, after a year of implementation, and outcomes after about four to five years of implementation, in terms of effects and impacts, are evaluated. These outputs and outcomes discussed with managers and planners for decision-making and updating the plan (Ibid, 32).

3.2 EDUCATIONAL PLANNING MODELS

In this session we will discuss different educational planning models developed in different times.

3.2.1 Bell's Strategic Planning Model

This model was developed by the Northwest Regional Education Laboratory in cooperation with the Oregon Education Coordinating Council. The purpose of the model is to increase both intra-system and inter-system planning effectiveness. The circular model (Figure 3.3) has eight major steps grouped into three phases and steps.

The model separates the three phases of management activity as strategic planning, tactical planning, and control. The processes under strategic planning are
identification of problems, definition of policy objectives, and assignment of institutional roles and resources.

Tactical planning transforms policy objectives and general allocation of resources into selection of programs, identification of alternative strategies, and developing specific program designs for action. Action ensures that performance proceeds according to plans, as well as monitors and evaluates results. In the center of this circular model is the information system that takes care of all data and information gathered and used as feedback in decision-making and planning process (Bell et al., 1989).

3.2.2 Herman’s Strategic Planning Model

Herman and Herman (1994) developed a model that focuses on a school as the frame of planning reference (Figure 4). The steps are grouped into two major areas, namely, strategic planning and tactical planning. The planning areas and steps are:

Figure 3.3: Educational Planning Model (Bell et al., 1989)
A. Strategic Planning

1. Vision # 1
   a. Beliefs and values
   b. Environmental scanning; Internal and External
   c. Critical success factors

2. Vision # 2
   a. Mission statement
   b. Strategic goals
   c. SWOT analysis

B. Tactical Planning

1. Strategic objectives
2. Decision rules and priority selection
3. Action plans
4. Allocate resources and operate plans

Under this model, the first step under strategic planning is the creation and consensus of a vision by school leaders and stakeholders. The role of the school is considered in the mega, macro and micro environments. With this information, the planners are able to situate where they are and core values and beliefs of school leaders and stakeholders are identified for eventual incorporation into the vision. Scanning the environment, internally and externally, is the next step. Generated data and information would provide the present state of the school and obtaining conditions, the environment would dictate which are facilitative and impediments in the attainment of the preferred ideal vision.
Figure 3.4: Educational Planning Model (Herman and Herman, 1994)
The next concern is the identification of critical success factors. These factors are jointly identified by the school leaders and stakeholders and eventually only those are retained that enhance the attainment of the desired future vision, while those that hinder it are eliminated. With so much data and information, vision number two is arrived at and agreed upon finally by the planners. The final vision is then used as basis in the formulation of the mission statement and the strategic goal. Formulated mission and goal consider the major role of the school in the mega, macro, and micro environments.

The final step under this phase is conducting the SWOT analysis. Data gathered earlier are laid out in two-by-two table to analytically determine which of these factors enhance or impede the attainment of the preferred ideal vision. Strengths and opportunities are further built upon and capitalized on while weaknesses and threats are remedied and eliminated. Once the strategic plan is completed, this is turned over to the tactical planners who will devise and design the specific operational plans (Miclat, 2005).

In the tactical planning phase, the first step is the formulation of specific objectives for every goal that has been framed. Prioritization of these objectives is undertaken with the use of a commonly-agreed upon set of decision rules. Once the objectives are prioritized, the next step is the development of specific action plans. The plans are then subjected to testing or analysis to determine the best alternative strategies. The testing involves the use of brainstorming, force field analysis, cost-benefit, and cost-effectiveness analyses. The last step is the allocation of resources to the best alternative plans and strategies, implementing and monitoring them, and finally evaluating the results (Ibid).

3.2.3 Kaufman’s Strategic Planning Model

Another strategic planning model applicable to education is the systems framework model (Kaufman et al., 2002). The model (Figure 5) has undergone extensive improvements during the last two decades. The strategic planning processes were initially presented in a systems analysis of six steps (Kaufman, 1972); the Organization Elements Model (OEM) (Kaufman, 1988); a systems framework of four
major clusters of 13 steps (Kaufman and Herman, 1991); and finally an improved systems framework model consisting of three major clusters and 12 steps, as follows:

A. Scoping
   1. Ideal vision
   2. Identify and select needs
   3. Define current mission
   4. Derive mission objective

B. Planning
   5. Identify SWOT
   6. Derive long and short-term mission
   7. Derive strategic plan

C. Implementation and Continuous Improvement
   8. Derive tactical and operational plans
   9. Make/buy/obtain resources
  10. Implement
  11. Continuous improvement/formative evaluation
  12. Determine effectiveness and efficiency
  13. Revise/improve as required

The model begins with the scoping phase. The first step under this phase is the identification of the preferred ideal vision in the mega, macro, and micro perspectives. Parallel to this activity is the identification and selection of needs. This step involves the identification of values and beliefs and data gathering on the internal organization and external environment. These are inputted in the continuous improvement of formulating the ideal vision. From the data, critical success factors are also determined to guide educational partners in the planning and thinking processes of the strategic planning phase. The framed ideal vision dictates the elements of the mission of the organization which commits to deliver and contribute to that vision. A mission is a broad description of purpose. Once the mission is framed, the objectives are formulated. Objectives
should be based on the mission and the mission on the vision. The objectives state both where the organization is headed and the precise criteria for determining accomplishments (Miclat, p. 48).

The conduct of SWOT analysis is the first step under the planning phase. On the bases of the ideal vision, mission, objectives and needs assessment, the analysis of identified strengths, weaknesses, threats, and opportunities becomes the organizational barometer indicating the organizational and environmental factors that enhance or impede the attainment of specific objectives. Based on this information, long- and short-term missions (targets) are derived and the strategic plan developed through the conduct of function and system analyses. The results of these analyses are in the form of products designed to attain the objectives. Scoping and planning phases fall under the domain of strategic planning. Once the strategic plans are completed, these are turned over to the tactical planners (Ibid.).

The first step under tactical planning is the formulation of tactical and operational plans through the operation of a method-means analysis. The analysis identifies the possible ways and means for doing and undertaking the products, tasks or outputs. Once the products and the different means for doing them are completed, funds and resources are allocated. Tasks and products are then implemented. The ascertainment of successful plan implementation requires developing of structures within the organization, installing a management information system (MIS), and a monitoring system. After a short period of time, formative evaluation is undertaken to determine whether or not outputs approximated the stated objectives and mission. The conduct of summative evaluation determines the levels of efficiency and effectiveness of the outputs maturing into outcomes. Outputs and outcomes serve as inputs to revise if not improve the strategic and tactical planning process (Ibid., p.48).
Figure 3.5: Strategic Planning Model (Kaufman et al., 2002)
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SESSION 4  STRATEGIC PLANNING

Objectives:

At the end of the session participants will be able to

- Understand the fundamentals of strategic planning
- Identify the components of strategic planning
- Learn the basics of educational planning through computer simulation

What we will learn

- How to develop strategic plan in education sector?
- How to use EPSSim model for educational planning?

Total Time: 3 hours

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<td>- Presentation on Slides</td>
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<td>1 Hour</td>
<td>2. Prepare a strategic plan through computer</td>
<td>- Create groups</td>
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<td>simulation model</td>
<td>- Make the planning software</td>
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<td>30 Minutes</td>
<td>3. Discussion</td>
<td>- Key points</td>
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Introduce the Objectives of the session and the activities

Activity 1:
Make the presentation on strategic planning

Activity 2:
Practical work

Activity 3:
- Hold a discussion: The significance of “Strategic planning ”
- Sum up the points
4. STRATEGIC PLANNING

4.1 INTRODUCTION

Strategic planning is a systematic planning process involving a number of steps that identify the current status of the project or program, including its mission, vision for the future, operating values, needs (strengths, weaknesses, opportunities, and threats), goals, prioritized actions and strategies, action plans, and monitoring plans. A strategy is an overall approach and plan. So, strategic planning is the overall planning that facilitates the good management of a process. Strategic planning takes you outside the day-to-day activities of your program or project. It provides you with the big picture of what you are doing and where you are going. Strategic planning gives you clarity about what you actually want to achieve and how to go about achieving it, rather than a plan of action for day-to-day operations [12].

Strategic planning enables you to answer the following questions:

- Who are we?
- What capacity do we have/what can we do?
- What problems are we addressing?
- What difference do we want to make?
- Which critical issues must we respond to?
- Where should we allocate our resources? /what should our priorities be?

A good strategic plan should:

- Address critical performance issues
- Create the right balance between what the program or project is capable of doing vs. what the program or project would like to do
- Cover a sufficient time period to close the performance gap
- Visionary – convey a desired future end state
- Flexible – allow and accommodate change
- Guide decision making at lower levels – operational, tactical, individual
4.2 STRATEGIC PLANNING RATIONALE

Organizations need to plan for various reasons, namely:

- To reorient the organization or institution to the needs of the community. Community includes the mega community, the macro community (the educational system), and the micro community, which is the private or the public sector education system. The necessity of reorienting the institution to the needs of the community has been underscored by Onuskin (1993) when he commented that “In the majority of the institutions there is a … serious gap between their activities and the actual societal and economic needs of their countries.”

- Another serious consideration is that when people plan for expansion, a certain level of minimum standard must be observed. This will guarantee a certain level of minimum quality performance. In a higher education institution, such standard must cover the physical plant, facilities, and faculty and staff. More significantly, it should include student qualification and performance, curriculum, methodology, evaluation procedures and financing arrangements. This standard can be achieved through surveys, studies, operations research, and cost-benefit analysis.

- Effective strategic planning initiatives or efforts can make the organization a more responsive and viable instrument for socio-economic development of the nation.

- There is a need to establish priorities because of dwindling resources for sectoral services. As could be inferred from the National and Regional Development Plans and Annual Investment Programs, there are many competing concerns which need government attention and support. There is therefore a need to prioritize programs and projects. Priority listing can be achieved by formulating a set of quantified criteria reached through consensus. Programs and projects can then be prioritized thereby assuring the rational allocation of scarce resources.

- While the knowledge explosion and the emergence of new technologies brought about by advances in science and information and communication technology blur our vision and make us less able to visualize the future, the nullifying effect
of the inundation of new knowledge and technology for efforts in strategic planning underscores the need for planning.

- Strategic planning means a more realistic forecasting of events. Strategic planning always involves some view of the future.

### 4.3 PERSPECTIVES IN STRATEGIC PLANNING

If planners really aspire to formulate a realistic, achievable, responsive and effective strategic plan and to implement the plan, they have to possess down-board thinking, paradigm shift, and holistic and global orientation.

#### Down-board Thinking

Down-board thinking is an important component of effective strategic planning. Like a chess grandmaster, a planner should think and decide not only on immediate things but he must look “down-board” and consider the future. Effective strategic planning creates scenarios and considers the consequences of these scenarios in the light of competition and the response of the environmental factors.

#### Paradigm Shift

In order to be able to craft a realistic, responsive, effective and achievable strategic plan, planners need a shift in paradigm. Paradigm is simply a set of ideas that are usually unwritten and that people have learned and embraced through education and experiences that defines the conventional methods about the rules of nature and life.

A paradigm acts as a mental filter or screen that delimits the way people think about things by setting up boundary conditions that are often perceived rather than real. Paradigm shift requires disassembling our old and conventional ways of seeing, doing, thinking and assessing a thing because they no longer apply with reality and the present. The new paradigm calls for a broad, flexible, eclectic, creative and futuristic mental framework.

We must now change and enlarge our educational paradigm from teaching to learning, from rote mastery to process learning and dynamic citizenship, from input-
oriented to output-oriented curriculum development. We have to be radical, if needed, and future shock-free to ascertain the success of our products and graduates both in school and in the real world of life.

4.4 COMPONENTS OF STRATEGIC PLANNING

There are three main components strategic planning. These components are shown in figure 4.1

1. Plan development
2. Plan execution
3. Plan review

![Components of Strategic Planning](Image)

Figure 4.1: Components of Strategic Planning (Courtesy Matt H. Evans)

Many of the functional areas within these components are similar in that all three require a team concept that is based on: ensuring the roles of members are defined, educating team members about the process, and using quality communication when interacting [14].
4.4.1 Plan Development

Plan development is the first component of strategic planning. During this stage, the following steps should be completed.

- Executive Summary
- Current status of the project or program
- Evaluate the current project or program’s team
- Develop mission and vision statement
- Determine the operating values also called guiding principles
- Perform needs assessment
- Determine critical issues
- Define the roles of key players
- Educate and communicate the plan
- Develop and prioritize long-range goals
- Develop short-term goals and action plans
- Monitor the progress

4.4.2 Plan Execution

Plan execution is the second phase of strategic planning. In this step, the plan is put into action through the allocation of resources. This step has three components:

Projects: The projects serve as blueprints for converting objectives into realities

Procedures: Procedures are the specific sequence of tasks required to complete the projects.

Budgets: The budgets should be prepared to fund projects. The projects should not be budget driven, these should be strategic driven

If the plan development phase was put together well, then the plan execution phase is much easier.
4.4.3 Plan Review

Plan review is required constantly to improve the plan and ensure its execution. Plan review needs to be scheduled to ensure the plan is meeting the community's goals. This can be achieved through surveys, management review conferences, or discussions at meetings. If the community fails to update the plan, the plan will eventually fail the community.

A strategic framework includes:

- A clearly stated vision;
- Clearly articulated values;
- A mission, articulated in a mission statement;
- The overall goal of the project or program;
- The immediate objective of the project or program;
- The key result areas on which the project or program intends to focus;
- An understanding of the gaps between where the program or project is and where it needs to be to achieve its goals and objectives and of the forces that are likely to help and hinder it.

All these elements need to be in alignment. This means that they should fit together and complement one another, rather than contradict one another. So, for example, the mission should fit with the values and vision of the program, and should address the needs of the key stakeholders who are the intended beneficiaries of the work. The key result areas should, accumulatively, enable the objectives and goals to be met, and should contribute to the fulfillment of the vision. Assumptions that are made (see the section earlier on clarifying planning parameters) should be carefully considered in terms of their effect on the ability of the project or program to make an impact. The consideration of gaps and opposing and supporting forces should be done in relation to where the program is and what it wants to achieve. The strategic framework should give coherence and clarity to the work of the program or project.

The strategic framework is shown in figure 4.2
4.5 STRATEGIC PLANNING IN EDUCATION SECTOR

In education sector, the strategic planning can be done in different stages which are partially overlapping. Each phase implies the completion of different steps (activities), some of which can be implemented at the same time. Furthermore, the preparation of a plan is an iterative process – new information and insights will often require planners to go back to earlier steps and phases. Broadly speaking, the different phases are as follows:

1. Sector Analysis
2. Policy Formulation
3. Selection of key plan objectives and priority areas
4. Design of priority programs
5. Preparation of the cost and financing framework
6. Design of the monitoring and review system
7. Writing up of the draft plan
8. Revision of the draft plan and official approval of final plan document

4.5.1 Sector Analysis

Sector analysis consists of conducting data collection on and critical analysis of the aspects relating to the education sector. Planners carefully review how the system functions (internal dynamics) and examine various contextual, determining factors (the environment of which education is a part), e.g. macro-economic and socio-demographic situations and developments.

4.5.2 Policy Formulation

Careful (and critical) analysis of the educational system undertaken during the sector analysis leads to questions about what the education sector must do in order to address the major issues, challenges and opportunities. These questions include what overall results (strategic goals) the system should achieve and the overall methods (or strategies) to implement policies designed to bring about such objectives.

4.5.3 Selection of key plan objectives and priority areas

Action planning is a process whereby one translates the policy statements (options and strategies) into executable, measurable and accountable actions. In a broader sense, action planning includes specifying objectives, outputs, strategies, responsibilities and timelines (what, what for, how, who and when). The output of this process is a plan of action.

4.5.4 Design of Priority Programs

This phase is intimately linked to Phases 1 and 2. The identification of the main challenges resulting from the situation analysis, together with the broad policy orientations retained, will serve as the basis for setting the main plan objectives and targets and for selecting the priority programs.

In order to make the final selection of objectives and targets realistic, a rough feasibility testing of different education development scenarios will have to be carried out during this phase. This means that the preparation of the simulation model, which
will serve as the instrument for the feasibility testing, has to be initiated at the very beginning of Phase 1 in order to be ready for its use during Phase 3. The decentralized levels of management should again be actively involved in carrying out Phase 3.

The end of this phase is the appropriate moment to launch a broad consultation process of the different categories of stakeholders in order to share with them the results of Phases 1, 2, and 3 and invite their comments and suggestions about the main challenges ahead, the national policy goals and orientations selected, and the key plan objectives and priority areas identified.

4.5.5 Preparation of the cost and financing framework

Once the plan objectives and priority action areas have been fixed, specific priority programs will have to be designed for reaching the objectives, with indication of precise targets, of the key activities to be completed, of the corresponding time lines, and of the units responsible for each activity. This phase is generally the most time consuming.

The active involvement of the decentralized levels of management might be more difficult to organize, but it should be aimed for (e.g. through the active participation of selected local level officers in the different Working Groups in charge of the program design).

4.5.6 Design of the monitoring and review system

Basic information about cost and financing should have already been collected at the beginning of Phase 1, and the first rough cost estimates for reaching the medium-term plan objectives will already have been made during Phase 3.

During Phase 5, specific costs of the different priority programs must be estimated and the overall cost of the plan (recurrent and capital) calculated and balanced with the estimated funds that will be available. This will involve a final feasibility testing of the plan objectives.
The cost and financing framework should be prepared in close cooperation with the Ministry of Finance and the Ministry of Planning.

4.5.6 Design of the monitoring and review system

Once the preparation of the priority programs is already well advanced (Phase 4), the monitoring framework can be designed. This framework will present a matrix of key indicators, and spell out the monitoring structures to be put in place at different levels of management, as well as the monitoring processes to be followed (including the review processes with the donors).

4.5.7 Writing up the draft plan

The different sections of the draft plan will have been produced during each of the previous phases. During this phase, the different sections will have to be brought together in one coherent document.

At the end of this phase the draft plan should be shared with the stakeholders, and in particular with the donor agencies, the Ministries of Finance and of Planning and the decentralized levels of management, in order to collect their comments and suggestions for revision and finalization.

4.5.8 Revision of the draft plan and official approval of final plan document

The revision of the draft plan should take into account the comments and suggestions collected from the different stakeholders. The revised plan document will then be transmitted to the Steering Committee for its appraisal and recommendation to the Minister for its official approval.

Once the plan has been officially approved, a launching event can be organized in order to inform the public at large about the plan and to mobilize the different stakeholders for its successful implementation.

4.6 Educational Planning Through Computer Simulation
The use of computers as a tool for education policy simulation and planning has been going on for around twenty years. Until the beginning of the 1980’s planners used simple calculators, which were followed by programmable ones. These were capable of performing a limited series of repetitive calculations, as for example those resulting from the application of the flow rates to the number of students of given educational level [22].

The simulation model that is presented in this session was designed to address three major requirements regarding its adaptability, its demonstrability and its user friendliness.

**Adaptability**: This requirement addresses the need to have a generic model. This model can adapt to a verity of structures which characterize the different education systems in the world, and can rapidly and methodically take into account the principal data and variable, particularly at the design stage of education policy. Without major changes, it can be configured by including the national education structures, their data, parameters, modalities of operation, and provide the principal results of their simulation in an aggregate and synthesized manner. It is structured to cover all the levels and types of formal education, their principal subdivisions, the public and private sectors, etc. it can also be used in a limited application, for a single sub-sector or type of education or training.

**Demonstrability**: This model guides the user in the definition of the system’s structure (or that of its education sub-system) and guides him at the different stages of the simulation’s construction, i.e. the entry of the baseline data, the definition of the simulation parameters, and the use of the forecast’s results. Thanks to the different macros used, the tables and the forecast results are automatically constructed as soon as the raw data and the necessary simulation parameters are introduced by the user. As a demonstration tool, this model allows the rapid evaluation of the short or long-term physical and financial consequences of policy decisions. In the course of policy consultations, it can also provide background material on the financial feasibility of policy options, and propose alternative development scenarios.
**User-Friendliness:** The model is designed to be user-friendly, in the sense that education planners and other users with a minimum knowledge of computers can easily manipulate it. It can be used to construct and test development scenarios of their education systems, by moving from one worksheet to another, to measure the impact of options, with the view of deciding whether or not a particular scenario should be maintained.

### 4.6.1 The Use of EPSSim

Education Policy and Strategy Simulation (EPSSim) is a generic simulation model. UNESCO developed this model with the view of contributing to the planning and programming of development actions of national education systems. Being generic, this model therefore does not correspond to any given education system. But it can be used, after some adaptation by specific countries, for rapid simulations based on their education system’s major development orientations and hypotheses. In particular, it can be used at the pre-definition stage of education policy options in so far as it can facilitate the policy dialogue and consensus building on the major orientations of educational development.

It was designed from three viewpoints:

- To rapidly make a planning tool available to countries involved in developing their action plans for Education for All (EFA);
- To demonstrate the usefulness of a computer application in the evaluation of the educational and financial implications of the objectives of the retained policy;
- To allow the user of this model to test, after the required adaptation, the simulation of the probable evolution of his country’s education system based on the available database and the policy options which he will have identified.
4.6.2 How to Use EPSSim?

Briefly explained below are the principal stages to follow to open the model EPSSim and carry out a simulation by going through the different stages which are: the reproduction of the education system’s structure, the entry of the baseline data and the hypotheses, and the use of the simulation results and its adjustments.

Start EPSSim

When you start EPSSim, you will be asked to create menus from where you will find all the sections (sub-menus) required to complete and use the simulation model (Figure 4.4).
Entry of baseline data and simulation parameters

Before beginning the process of simulation, it is necessary to first enter the data on the structure of your education system in the simulation model. To enter the information on the structure of your education system, select the menu ‘EPS Simulation’, the sub-menu ‘Info on the Education Sector’ and then ‘Structure of the Education System’. On the activated worksheet, you shall enter the number of years of each level of education. In cases where a level or type of education does not exist in your own education system, enter the figure ‘0’ in the corresponding cell (Figure 4.5).
After entering the structure of your education system, click on the button ‘OK to Simulate’. The model will restructure itself according to the data that you introduced on your education system.

**Choice of periods and levels of education to simulate**

The next step consists of introducing the information on the level and types of education for which you would like to carry out a simulation. To do this, select the menu ‘EPS Simulation’, the sub-menu ‘Info on the Education Sector’ and then ‘What to Simulate?’.

You are invited by the model to enter the information on the simulation period and the levels and types of education on which the simulation will be based. That is, on the form’s window, enter the start year (base year) and the period of simulation (for example, ‘1999’ to ‘10’, which means that you would like to simulate until 2009). Then, define the levels, types and sectors of education to simulate by deactivating the cells which are not related to your simulation, before clicking on ‘OK’ (Figure 4.6).

![What to Simulate?](image)

**Figure 4.6: Enter period and type of education**

It should be remembered that once confirmed at the warning message, you would not be able to reactivate a deactivate level or type of education, unless you...
repeat the simulation from the start. It is therefore necessary to confirm the deactivation of this or that level of education only when you are sure that the simulation will not relate to this level.

<table>
<thead>
<tr>
<th>Year</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>126,764</td>
<td>23,819</td>
<td>134,824</td>
<td>23,819</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>2004</td>
<td>126,764</td>
<td>23,819</td>
<td>134,824</td>
<td>23,819</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.7: Worksheet for entry of baseline data

**Entry of baseline data and hypotheses of simulation**

Once the information on education system and the education levels are regrouped, the baseline data should be entered. To do this, select the level concerned by clicking on the menu ‘EPS Simulation’ and the sub-menu ‘Baseline Data’ (Figure 4.7). The entry of hypotheses will be done in the same manner by selecting the levels concerned by clicking on the menu ‘EPS Simulation’ and the sub-menu ‘Hypotheses’ (Figure 4.8).
Using the results and scenarios

You can use the results of the simulation in different forms of presentation (result tables by level of education and type of information, viewing and/or printing of graphs, production and consultation of scenarios, etc.).

You can select and print the levels and types of education concerned, visualize and print the graphics, etc. To consult these results, select the menu ‘EPS Simulation’, the sub-menu ‘Select Results/Forecasts’, ‘Charts Views’ or ‘Print Results’ and click on the item concerned.
This model makes it possible to have several scenarios and compare them in the form of tables or graphs (Figures 4.10 and 4.11).
4.6.3 Indicators used in EPSSim Model

- Gross Enrolment Ratio (GER)
- Net Enrolment Ratio (NER)
- Age specific enrolment ratio
- Apparent (Gross) Intake Rate
- Net Intake Rate (NIR)
- Promotion Rate
- Repetition Rate
- Dropout Rate
- Transition Rate
- Gross Completion Rate
- Survival Rates by Grade
- Coefficient of Efficiency
- Years- input per graduate
- Average duration of studies per dropout
- Average duration of studies per graduate
- Average duration of studies per dropout
- Average duration of studies for the Cohort
- Classroom space utilization rate
- Classroom time utilization rate
- Class utilization rate
- Classroom requirements
- Public expenditure on education as percentage of gross national product (GNP)
- Public expenditure on education as percentage of total Govt. expenditure
- Percentage distribution of public current expenditure on education by level
- Public current expenditure per pupil student as percentage of GNP per capita
- Public current expenditure on education as percentage of total public expenditure on education

**Activity 4.1:**

Suppose you are head of a school. Create a strategic plan that provides the big picture of where you are, where you are going and how you are going to get there. During this activity keep in view that strategic planning is the process of looking at all aspects of your school and planning how you wish to move the school forward.
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SESSION 5  TACTICAL PLANNING

Objectives:

At the end of the session participants will be able to

- Understand the fundamentals of tactical planning
- Realize the importance of tactical plan in education sector
- Develop a PC-1

What we will learn

- How to develop a tactical plan in education sector

Total Time: 3 Hours

<table>
<thead>
<tr>
<th>Duration</th>
<th>Activity</th>
<th>What is needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hour</td>
<td>1. Prepare a Presentation on tactical planning</td>
<td>- Presentation on Slides</td>
</tr>
<tr>
<td>1 Hour 30</td>
<td>2. Prepare a tactical plan</td>
<td>- Sample Plans</td>
</tr>
<tr>
<td>Minutes</td>
<td>3. Develop the outline of a PC-I</td>
<td>- Sample PC-I</td>
</tr>
<tr>
<td>30 Minutes</td>
<td>4. Discussion &amp; Findings</td>
<td>- Key points</td>
</tr>
</tbody>
</table>

Introduce the Objectives of the session and the activities

Activity 1:

- Make the presentation

Activity 2&3:

- Group Work focused on development of a tactical plan

Activity 4:

- Hold a discussion on tactical planning
- Sum up the points
5. TACTICAL PLANNING

5.1 INTRODUCTION

Tactical plans have shorter time frames and narrower scopes than strategic plans. Tactical planning provides the specific ideas for implementing the strategic plan. It is the process of making detailed decisions about what to do, who will do it, and how to do it.

- Tactical planning is often done on a fixed schedule.
- The problems confronted in tactical planning tend to be of a repetitive nature.
- Tactically planning usually has a short time horizon.
- Tactical planning concentrates on a narrow operational planning task.
- Tactical planning is usually from a functional point of view.

Tactical planning takes a program’s strategic plan and sets forth specific short-term actions and plans. The tactical planning horizon is shorter than the strategic plan horizon. If the strategic plan is for five years, tactical plans might be for a period of one to three years, or even less, depending on kind of program or project. Strategic planning involves only the top brass of an enterprise whereas the tactical planning part envisages the involvement of the organization as a whole [16].

To understand the differences better, here are some notable points with respect to strategic and tactical planning. In strategic planning, you need to determine specifically what outcome you want to achieve and establish a realistic baseline or starting point giving due consideration to internal and external realities by conducting relevant research. You need to draw up an aggressive plan to support research findings listing defined strategic objectives. The plan should reflect perceived challenges and the expected end results.

To elicit support for the strategy, undertake a consensus-building exercise involving the right people. Make sure that tactics are likely to lead to the strategic benefits you desire to achieve. In tactical planning, you need to understand strategic
goals and decipher the goals and implement courses of action for attainment of strategic objectives.

As a planner, you need to make plans that include specific activities that are arranged on specified time frames and outcomes. Ensure due performance of all tactical planning activities and calculate their effects; then help connect the tactical moves to the strategic plan.

Tactical planning is developed by a management team who deals with getting the work done to carry out the strategic plan. They draw up a tactical plan that will deal with the “how” part of the plan. The main question for them is: “How can goals be accomplished within the designated limits of resources and authority?”

5.2 IMPORTANCE OF TACTICAL PLANNING

It is particularly important to establish tactical planning goals to help achieve success. It is much easier to create realistic budgets and to create action steps when there is a sound plan in place. It is imperative to allow some flexibility in tactical plan because of unexpected occurrences. The management gain focus when setting goals and objectives for a specific period of time, such as 12 months. A tactical plan usually includes between three to five goals that may be challenging, but are achievable.

Because every program or project is different and their needs are unique, tactical plans are individualized and tailored accordingly. Tactical plans can promote teamwork because they promote clarity as to how certain goals will be achieved. Tactical planning allows everyone to be on the same page and to work together to reach specific goals. Although each program or project may have a different set of goals, it is important to strategically plan for the future and establish proper tactical planning to support the strategic plan. When plans are followed, goals are easily achieved.

5.2 METHODOLOGY FOR PREPARATION OF TACTICAL PLANS

The methodology for preparation of medium term plans in Pakistan has been evolved after careful consideration of various aspects of the economic development over a period of time, e.g. what are the existing position and the problems faced by the National Education Management Information System (NEMIS)
economy? What is the likely perspective for the next five years keeping in view the national objectives, the resources available as well as those which could be mobilized from internal and external sources, the administrative machinery to implement those programs? What are the existing intra-sectoral and inter-sectoral priorities and whether any change is warranted during the next five years? What are the possible ways and means to reflect the changes in the socio-political structure in the country? While keeping these basic questions in view, the planning commission prepares the medium term plans which involve a number of exercises and studies and integration of various choices and alternatives to arrive at a realistic size and structure of the plan. It may be pointed out that with gaining experience, availability of more refined data and crystallization of various issues with the passage of time, some changes in the methodology may take place to conform to new situations and challenges but the basic methodology or process more or less remains the same.

5.3 Method of Tactical Planning in Pakistan

In Pakistan, the present method for planning, processing and reporting on development projects is based on the "Rules of Procedure for Economic Council", Planning Commission and Planning Sub-Commissions, issued by the former Ministry of Economic Affairs, Government of Pakistan in September, 1952. In addition to laying down an effective organization for planning, five (5) proformae (Revised in 1995) were prescribed for preparation and implementation of development schemes. Two of these deal with submission of project proposals (PC-I and PC-II), one is concerned with the progress of ongoing projects (PC-III) and two, i.e., PC-IV and PC-V are to be filled in after completion of a project.

5.3.1 PC - 1

In this session we will discuss PC-1 which is the basic form on which all projects/schemes are required to be drawn up. The PC-I form comprises four parts. Part 'A' is the "Project Digest", containing eight questions. These require mainly information on: (i) name of project, (ii) authorities responsible for sponsoring and executing of the project, (iii) completion period, (iv) a summary of cost in detail and (v) objectives of the
project. Part 'B' entitled "Project Description and Financing", forms the core of the PC-I. The precise nature and form of the questions varies from sector to sector. The principal information asked for includes: (i) location, (ii) market analysis, (iii) general description and justification, (iv) operating or recurrent cost estimates, (v) technical description, (vi) capital cost estimates, (vii) unit costs, sectoral benefits, cash flow, financing arrangements, foreign exchange component, risk analysis, beneficiaries participation etc. Part 'C' deals with "Project Requirements". The information sought in this part includes: (i) manpower requirements during implementation, (ii) physical and other facilities required and (iii) materials, supplies and equipment. Part 'D' deals with environmental aspects. It includes information required in respect of (i) impact assessment undertaken separately in case of water, sewerage and solid waste and (ii) recommendations along with the measures to be taken to control environmental pollution [24].

**An Example of PC-1**

**PC-1 for Establishment of a School**

Following is an example of PC-1 for establishment of a school in public sector of education.
ESTABLISHMENT OF FG MODEL SCHOOL FOR BOYS AT PRIME MINISTER’S STAFF COLONY, ISLAMABAD (PHASE-I)

CAPITAL COST RS.30.982 MILLION

August 2006

Planning & Development Wing,
FEDERAL DIRECTORATE OF EDUCATION,
Ministry of Education,
Government of Pakistan,
Islamabad.
Government of Pakistan

National Education Management Information System (NEMIS)
## Planning Commission
### PC-I Form
#### (Social Sectors)

<table>
<thead>
<tr>
<th></th>
<th>Name of Project:</th>
<th>ESTABLISHMENT OF FG MODEL SCHOOL FOR BOYS AT PRIME MINISTER’S STAFF COLONY, ISLAMABAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Location:</td>
<td>Prime Minister’s Staff Colony, Sector G-5</td>
</tr>
<tr>
<td>3</td>
<td>Authorities Responsible:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>i. Sponsoring</td>
<td>Ministry of Education (Projects Wing)</td>
</tr>
<tr>
<td></td>
<td>ii. Execution</td>
<td>Federal Directorate of Education/ Pak PWD</td>
</tr>
<tr>
<td></td>
<td>iii. Operation &amp; Maintenance</td>
<td>FDE/Pak PWD</td>
</tr>
<tr>
<td></td>
<td>iv. Concerned Federal Ministry</td>
<td>Ministry of Education (MoE)</td>
</tr>
</tbody>
</table>

### Plan Provision:
- MTDF 2005-2010 Rs.15.060 Billion for Secondary Education
- MTDF 2005-2010 Rs.20.490 Billion for Elementary Education
- Allocation for current Financial Year 2006-07 is Rs.5.000 Million

### Project objectives and its relationship with Sectoral objectives:
To provide education to the boys students class Prep – X of the employees of PM House/PM Secretariat residing in PM’s Staff Colony

### Description, Justification & Technical Parameters:
- **Goal of Project:** Establishment of FG Boys Model School at PM’s Staff Colony for 450 students, wards of the employees of PM’s House/PM’s Secretariat residing in the PM’s Staff Colony
- **Justification National Educational Policy, ESR, MTDF 2005-10 PM Secretariat’s Directive**
- The PM Secretariat (Internal) has directed to establish a secondary school for boys at PM’s Staff Colony, G-5, Islamabad.
- PM Secretariat has identified a piece of land for schools free of cost (letters at Annexure-XII (A),(B),(C))
- The goals will be achieved through provision of the following facilities to accommodate about 450 school going boys (Prep to X) of the PM’s Staff Colony:
  i. Building 17,304 Sft including all allied Physical facilities, the covered area within the norms

---

National Education Management Information System (NEMIS)
the Planning Division (Admin Block, Hall, C/Rooms, Labs, Lav. Block) – 38.45 Sft per student (Annexure – I)

ii. 11 Classrooms (for Classes Prep to X)
iii. 2 Labs (1 Computer, 1 Science)
iv. 1 Library
v. 1 Hall (Multipurpose)
vi. 1 Office (Admin)
vii. 1 Principal’s Office
viii. 1 Vice Principal’s Office
ix. 1 Staff Room
x. Furniture: Rs.1.684 Million (Rs.3’742 per student)
xii. Equipment/Lib Books etc.: Rs.1.425 Million (Rs.31.66 per student)

♦ The above building components are being taken up under phase-1. The plot is located along with a Nullah. The retaining wall / development of plot on Nulla side will be taken up under phase II

<table>
<thead>
<tr>
<th>Components</th>
<th>Cost (Rs. In Millions)</th>
<th>Annexure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil work (Building) 17,304 sft</td>
<td>27.873</td>
<td>I</td>
</tr>
<tr>
<td>Furniture (Classroom, Office etc.)</td>
<td>1.684</td>
<td>II</td>
</tr>
<tr>
<td>Total</td>
<td>30.982</td>
<td>-</td>
</tr>
</tbody>
</table>

7 Capital Cost Estimation

i. Indicate date of estimation of project cost
   August 2008

ii. Basis of determining the capital cost be provided. It includes market survey schedule rates, estimation on the basis of previous work done
   Construction ..................... Pak PWD
   Furniture Equipment etc.... Market Rate

iii. Provide year wise-estimates of physical activities by main components
    Year-wise Physical & Financial phasing is as under

<table>
<thead>
<tr>
<th>COMPONENT WISE YEAR WISE PHYSICAL ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERMS</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Civil Works</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Furniture</td>
</tr>
<tr>
<td>#</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>i.</td>
</tr>
<tr>
<td>ii.</td>
</tr>
</tbody>
</table>
| iii. | Employment General (Direct & Indirect) | BPS 01-15 ........ 14 Posts  
BPS 16-19 ........ 21 Posts |
| iv. | Environment impact | NIL |
| v. | Impact of delays on project cost & viability | All possible efforts will be made to implement the project accordingly to the schedule given above in section 6 & , if funds are available according to the requirement / schedule |
| 12 | Implementation of the project: |  
| i. | Indicate starting and completion data of the project | Starting ...............December, 2006  
Completion ...... June, 2008 |
| ii. | Item wise /year wise implementation schedule in line chart co-related with the phasing of physical facilities | Please see in section 7 above |
| 13 | Management Structure and manpower requirements including specialized skills during execution & operation phases: |  
- Project Civil Works will be implemented by Pak PWD  
- Other items by the FDE/Project Director |
| 14 | Additional project/decisions required to maximize socio-economic benefits from the proposed project: | If required, further decisions would be sought from the Education Secretary/PAO and Project Approving Forum |
| 15 | Certified that the project proposal has been prepared on the basis of instruction provided by the Planning Commission for the preparation of PC-I for Social Sector Projects |  

<table>
<thead>
<tr>
<th>Prepared by:</th>
<th>Name of Officer</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checked by:</td>
<td>Name of Officer</td>
<td>Signature</td>
</tr>
</tbody>
</table>
### ABSTRACT OF COST OF THE PROJECT

| 1. | Civil Work | Rs. 27.873 Million (Annexure-I) |
| 2. | Furniture  | Rs. 1.684 Million (Annexure-II) |
|    | **Total**  | **Rs. 30.982 Million**          |

### ANNEXURE-I

**NAME OF WORK:** ESTABLISHMENT OF FEDERAL GOVERNMENT MODEL SCHOOL FOR BOYS AT PRIME MINISTER’S STAFF COLONY ISLAMABAD.

| A  | 1. | Total area of double stories building 17304 Sft @ 1000/- Sft | Rs. 17304000 |
|    | 2. | Add 10% for W/S & S/I | Rs. 1730400 |
|    | 3. | Add 10% for external/internal electrification | Rs. 1730400 |
|    | 4. | Add 3% for Sui Gas | Rs. 519120 |
|    | 5. | Add 5% Site development, road and path or horticulture | Rs. 865200 |
|    | 6. | Cost of boundary wall 1147 Rft @ 1200/- Prft | Rs. 1376400 |
|    | 7. | Cost of U/G Water tank 10000 Glns @ Rs. 40/- P.Gln | Rs. 400000 |
|    | **(A) Sub Total Rs.** | 23925520 |
| B  | 1. | Add 5% contingencies | Rs. 1196276 |
|    | 2. | Add 6.5% departmental charges | Rs. 1555159 |
|    | 3. | Add 5% Wapda charges or Rs. 23925520 | Rs. 1196276 |
|    | **(B) Sub Total Rs.** | 3947711 |
ANNEXURE-II

SUMMARY

FURNITURE

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Classrooms</td>
<td>Rs. 0.704</td>
<td>(A-III)</td>
</tr>
<tr>
<td>1 Hall</td>
<td>Rs. 0.345</td>
<td>(A-IV)</td>
</tr>
<tr>
<td>1 Science Labs</td>
<td>Rs. 0.102</td>
<td>(A-V)</td>
</tr>
<tr>
<td>1 Staff Room</td>
<td>Rs. 0.119</td>
<td>(A-VI)</td>
</tr>
<tr>
<td>1 Admin. Block</td>
<td>Rs. 0.150</td>
<td>(A-VII)</td>
</tr>
<tr>
<td>1 Library</td>
<td>Rs. 0.142</td>
<td>(A-VIII)</td>
</tr>
<tr>
<td>1 Computer Lab</td>
<td>Rs. 0.122</td>
<td>(A-IX)</td>
</tr>
</tbody>
</table>

SAY: Rs. 1.684 (M)

Lump sum provision of Science material, Library Books and sports.

EQUIPMENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physics, Chemistry, Biology, Library &amp; Office</td>
<td>Rs. 400,000/-</td>
</tr>
<tr>
<td>2. Computer Lab.</td>
<td>Rs. 725,000/-</td>
</tr>
<tr>
<td>3. Sports Goods</td>
<td>Rs. 100,000/-</td>
</tr>
<tr>
<td>4. Library Books</td>
<td>Rs. 200,000/-</td>
</tr>
</tbody>
</table>

TOTAL: Rs. 1,425,000/-

SAY: Rs. 1.425 (M)

ANNEXURE-IX

ESTIMATED RECURRING EXPENDITURE

<table>
<thead>
<tr>
<th>S#</th>
<th>NOMENCLATURE OF POSTS</th>
<th>BPS</th>
<th>NO. OF POSTS</th>
<th>ESTIMATED EXPENDITURE FOR SALARY INCLUDING REGULAR ALLOWANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A)</td>
<td>Teaching Staff</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

National Education Management Information System (NEMIS)
<table>
<thead>
<tr>
<th>No.</th>
<th>Position</th>
<th>Posts</th>
<th>Salary per Month</th>
<th>Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Principal</td>
<td>19</td>
<td>24,056</td>
<td>288,672</td>
</tr>
<tr>
<td>2</td>
<td>Vice Principal</td>
<td>18</td>
<td>16,411</td>
<td>196,956</td>
</tr>
<tr>
<td>3</td>
<td>Senior Teachers/Computer Teachers</td>
<td>17</td>
<td>12,664</td>
<td>1,215,744</td>
</tr>
<tr>
<td>4</td>
<td>Physical Training Instructors</td>
<td>16</td>
<td>8,665</td>
<td>103,980</td>
</tr>
<tr>
<td>5</td>
<td>Trained Graduate Teachers</td>
<td>16</td>
<td>8,665</td>
<td>935,820</td>
</tr>
</tbody>
</table>

Sub Total (A) 20 2,637,192

(A) Non-Teaching / Supporting Staff

<table>
<thead>
<tr>
<th>No.</th>
<th>Position</th>
<th>Posts</th>
<th>Salary per Month</th>
<th>Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Lower Division Clerk</td>
<td>5</td>
<td>4,749</td>
<td>56,988</td>
</tr>
<tr>
<td>7</td>
<td>Accountant</td>
<td>11</td>
<td>5,770</td>
<td>69,240</td>
</tr>
<tr>
<td>8</td>
<td>Lab. Assistant</td>
<td>7</td>
<td>4,973</td>
<td>119,352</td>
</tr>
<tr>
<td>9</td>
<td>Librarian</td>
<td>16</td>
<td>8,665</td>
<td>103,980</td>
</tr>
<tr>
<td>10</td>
<td>Lab. Attendant</td>
<td>2</td>
<td>4,285</td>
<td>102,840</td>
</tr>
<tr>
<td>11</td>
<td>Library Attendant</td>
<td>2</td>
<td>4,285</td>
<td>51,420</td>
</tr>
<tr>
<td>12</td>
<td>B-1 Employees</td>
<td>1</td>
<td>4,356</td>
<td>363,904</td>
</tr>
</tbody>
</table>

Sub Total (B) 15 Rs. 869,724

TOTAL POSTS 35 Rs. 3,506,916

SAY Rs. 3.507 (M)
Activity 5.1:

Problem
In a particular village of your district/agency there is no girl’s school and therefore almost all girls of school-going age are out of school.

Situation
The village where you need to open the school has the following demographic details.
Households: 250 with size of average 7 family members
School-going age girls between ages 5-9: 5% of the population
Current grow rate (girls): 2.3 per cent
Infant girl mortality rate: 75 deaths/1,000 live births

Requirements
You, as a planner, need to plan opening a girl school. For this, you are required to develop a PC-1 and submit to the higher authorities for approval. The proposal needs to be supported by relevant data, otherwise it not likely to be considered.
The proposal should consider the present and future needs. It should contain current and future teaching staff and non-teaching staff and other necessary facility requirements. The facilities may include classrooms, library, hall/auditorium, latrines for students & teachers and drinking water, boundary wall, electricity and so on.
You also need to include on-going professional development courses for teachers and other recurring costs of the proposed school.
Please note that the community is also willing to share 50% of development expenditure as well as the provision of required land.

Time
45 Min
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SESSION 6  OPERATIONAL PLANNING

Objectives:

At the end of the session participants will be able to

- Understand the fundamentals of operational planning
- Realize the importance of operational plans in education sector
- Develop PERT/CPM

What we will learn

- How to develop an operational plan
- How to use PERT/CPM

Total Time: 3 Hours

<table>
<thead>
<tr>
<th>Agenda</th>
<th>Duration</th>
<th>Activity</th>
<th>What is needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Hour</td>
<td>1. Presentation on operational planning</td>
<td>- Presentation on Slides</td>
</tr>
<tr>
<td></td>
<td>1 Hour 30 Minutes</td>
<td>2. Prepare an operational plan</td>
<td>- Examples</td>
</tr>
<tr>
<td></td>
<td>30 Minutes</td>
<td>3. Use of PERT &amp; CPM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Discussion &amp; Findings</td>
<td>- Key Points</td>
</tr>
</tbody>
</table>

Introduce the Objectives of the session and the activities

Activity 1:
- Make the presentation

Activity 2&3:
- Create groups and prepare an operational plan

Activity 4:
- Hold a discussion on operational planning
- Sum up the points
6. OPERATIONAL PLANNING

6.1 INTRODUCTION

The Operational Plan defines how you will operate in practice to implement your action and monitoring plans – what your capacity needs are, how you will engage resources, how you will deal with risks, and how you will ensure sustainability of the project’s achievements. An Operational Plan does not normally exist as one single stand alone plan; rather the key components are integrated with the other parts of the overall Plan.

The key components of a complete Operational Plan include analysis or discussions of:

- **Human and Other Capacity Requirements** – The human capacity and skills required to implement your project, and your current and potential sources of these resources. Also, other capacity needs required to implement your project.
- **Financial Requirements** – The funding required to implement your project, your current and potential sources of these funds, and your most critical resource and funding gaps.
- **Risk Assessment and Mitigation Strategy** – What risks exist and how they can be addressed.
- **Estimate of Project Lifespan, Sustainability, and Exit Strategy** – How long your project will last, when and how you will exit your project (if feasible to do so), and how you will ensure sustainability of your project’s achievements.

The operational plan may only be considered complete when these components have been defined, at least in broad terms. As the project moves into Implementation, several of these components are then defined in more detail and tested in reality.

The level of detail and formality of the Operational Plan will vary depending on the size and complexity of the project or program. Small projects may only briefly touch on each of these topics before moving on to implementation. Large, complex programs should be able to provide evidence that they have addressed each of the components.
of an Operational Plan. The larger the program, the more extensive and formal the treatment of each component should be.

6.2 IMPORTANCE OF OPERATIONAL PLAN

An Operational Plan ensures that the project of program can be successfully implemented by getting your team to:

- Use resources efficiently, to help allocate scarce resources to the most critical gaps and needs.
- Clearly define your capacity gaps and most critical resource requirements.
- Reduce risks where possible, and prepare contingency plans where necessary.
- Think about the long term future of the project, including how you will ensure sustainability of your project’s targets and impacts.

6.3 HOW TO DESIGN OPERATIONAL PLAN

The following sections describe how to develop the different components of a complete Operational Plan. It is worth noting that there are strong links between the four components described here, and even some overlaps. You may find it easier to address them in a different order than is presented here. You may also wish to address multiple steps at the same time. An Operational Plan should be developed with the involvement of appropriate staff and partners. Efficient operational planning and implementation requires continuous and open collaboration between the core project team and other stakeholders.

6.3.1 Human and Other Capacity Requirements

The first step of an Operational Plan is to conduct a broad analysis of the human and other capacities required to implement your project – and current and potential sources of resources and partners to help fill capacity needs. You also need to make sure you account for any other resources and enabling conditions required to implement your project (such as community support, leadership, and a supportive legal framework). Some of these needs will probably be raised in your analyses of Risk and
Sustainability (see section 6.3.2). The following list of questions can be used to evaluate capacity needs, although this is not intended as an exhaustive list:

**Project Team Skills**

- Do you have enough people with the policy, technical, process, fund raising or communications skills required implementing the activities in your strategic plan? If not, how will you get them?
- To recruit any new staff or consultants required, how long will it take, how much will it cost and who needs to be involved?
- Will the implementing staff require enhanced or new skills? How will these skills be built, over what time frame and at what cost?

**Partners and Wider Institutions**

- How much extra work will be required of partner organizations? Do they have enough people with the required skills, knowledge and time? Do they have adequate resources to engage on this project, and have they planned and budgeted accordingly?
- Do you have the necessary wider institutional engagement and infrastructure for longer-term sustainability, or can this be built?
- Does your core team have the ability to monitor partners’ activities and impacts?

**Office Systems and Support Functions**

- How much extra work will be required of the following areas of operation, or will there be needs for recruitment, training or additional funding for any of these?
  - Finance and Administration, and Operations
  - Fundraising and Communications
  - IT
  - Human Resource
  - Policy and Technical Support
  - Project or Program Management Support
6.3.2 Financial Requirements

At this stage of your project or program, your team should carry out a general assessment of the financial requirements of implementing your plan over the expected lifetime of the project. This can be a fairly simple estimate for smaller, shorter term projects. For longer term, complex programs, a more comprehensive financial estimate is recommended.

In general, this estimate should be a high level (not too detailed) evaluation of your current and potential sources of income, the estimated costs of your action and monitoring activities, and any projected financial resource gaps. You should also consider long term expenditure and funding needs, particularly for larger projects and programs where the scope of your strategies may be far beyond your current capacity, and you envision the need to scale up, raise more funds, and engage more partners in order to carry out the work. Once you begin actual implementation of your project (starting with Step 3.1) your team will use this general financial estimate to help prepare detailed shorter-term (1-5 year) work plans and budgets for implementing your project.

Simplified project financial needs estimate or model:

For most projects, you may develop a simple table or “model” in Excel that shows estimated project income, project expenditures, and your project’s balance and funding gaps (if any). The table 6.1 is a very simplified example of a five-year financial estimate.

The level of detail in this estimate will depend on the size and complexity of your project as well as where you are in the project cycle. For example, early on in your project design you may wish to have high-level estimates of the costs of major activities. Once you are in the implementation mode you will have to develop more precise budgets.

In addition, your team may wish to estimate two or three scenarios in relation to your projected income and expenditures (e.g. – expected, best-case and worst-case). You should consider how you will respond to these scenarios, especially the worst-case
scenario. For example, which activities will you prioritize as the most important to implement and which will you delay?

<table>
<thead>
<tr>
<th>Summary Budget (All Values in xxxx Currency)</th>
<th>Budget FY 2006</th>
<th>Budget FY 2007</th>
<th>Budget FY 2008</th>
<th>Budget FY 2009</th>
<th>Budget FY 2010</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Secured Income (Grants, Donations, User Fees, Other):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donor W</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Donor X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Source Y</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Total Income:</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>B – Budgeted Expenditures:</td>
<td></td>
<td></td>
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<tr>
<td>Action Plan</td>
<td></td>
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<tr>
<td>Strategy / Activity 1</td>
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<tr>
<td>Strategy / Activity 2</td>
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<tr>
<td>Strategy / Activity 3 etc.</td>
<td></td>
<td></td>
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<tr>
<td>Monitoring Plan</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Activity 1</td>
<td></td>
<td></td>
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<tr>
<td>Activity 2 etc.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Management Expenditures</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other Indirect Expenditures (if any)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total Expenditures:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-Balance (A –B ):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance of funds to raise to cover budgeted expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Table 6.1: Simplified Project Financial Needs Estimate or Model

6.3.3 Risk Assessment and Mitigation Strategy

As you develop your Operational Plan you should assess the risks to your project and what you can do to mitigate them. Risks are conditions under which the project/program is expected to function, but which can cause problems. Projects often have no direct control over these conditions. High risks are those that, when not overcome, are likely to stop the project from achieving its goals and objectives.
A risk mitigation strategy is a plan to address risks that your team has identified. Your team should develop mitigation strategies for any high risk. Timely risk mitigation allows your team to anticipate risks in advance and hence avoid a major impact on your project. The steps in the risk assessment and mitigation process include:

**A. Identify Risks** – Your project team should go through a formal exercise to identify specific risks related to your project. It is important to define each risk using concise and unambiguous language.

**Rank Risks** – The next step is to individually rank each risk according to its likelihood, and the severity of its potential effect on the project. The following risk assessment template helps your team to rank each risk on a 1-4 scale across two criteria:

**Likelihood of Risk Occurring**

- 4 = Very Likely – Almost certain to occur over the life of the project (or a 10 year period, whichever is shorter)
- 3 = Likely – Probably will occur during a 10-year period
- 2 = Unlikely – Probably will NOT occur during a 10-year period
- 1 = Very Unlikely – Almost certain NOT to occur during a 10-year period

**Severity of Risk**

- 4 = Very High – Would prevent goals and objectives from being achieved
- 3 = High – Would cause significant problems or delays in objectives being achieved
- 2 = Medium – Would cause relatively minor problems or delays in objectives being achieved
- 1 = Low – Would probably not affect project implementation

**C. Determine Final Ranking of Risks, and Develop Risk Mitigation Strategies** – Add the ratings for steps 1 and 2 for each individual risk and then determine whether each
individual risk is high, medium, or low using these thresholds, and then respond as follows:

6-8 = High Risk – You should have a detailed mitigation strategy, and perhaps consider modifying your goals and objectives

4-5 = Medium Risk – You should have a clearly defined mitigation strategy

2-3 = Low Risk – No mitigation strategy required (or a very basic strategy at most)

For risks that are essentially internal (e.g. capacity, leadership, partners) you should focus on taking action to reduce the risk. For risks that are external to the project (e.g. political, economic) your response will more likely be to develop contingency plans and monitor the risks. You should then assign responsibilities among your staff and/or partners for carrying out each mitigation strategy and for monitoring each risk as necessary. Mitigation actions for high risks may be large enough to be included in the budget.

You can use the Risk Assessment and Mitigation Template to document and track each risk, ranking and mitigation strategy. It is important that your team ensures that your risk mitigation strategies are clear and manageable with the resources available to your project.

6.3.4 Estimates of Project Lifespan, Sustainability, and Exit Strategy

Finally, one of the most important (yet sometimes most forgotten) task of the design step is to think about the long term future of the project in terms of:

- **Sustainability of the project** – A project can be said to be sustainable when it continues to deliver conservation results indefinitely after most or all external support has been removed.

- **Estimated Project Lifespan** – The period of time over which your team expects to carry out all activities under the Action Plan and achieve the project’s intended results. Your initial action plan may represent a first phase of your project. You should be clear about whether you expect further phases and what the timing of those phases will be.
• **Exit Strategy** – The process by which other partners can systematically and responsibly pull out of supporting and/or managing a project, either concluding the work successfully or handing management or funding over to another organization.

In looking at the long-term plans for your project, it is particularly important to clarify expectations with partners, stakeholders, and your own staff. Getting projects up and running successfully is quite a challenge, but exiting from a project or parts of it can be even harder! Few projects seem to have implemented exit strategies and reliable experience is scarce.

### 6.4 Scheduling

The planned dates for performing activities and the planned dates for meeting milestones is called scheduling. The project schedule provides a graphical representation of predicted tasks, milestones, dependencies, resource requirements, task duration, and deadlines. The project’s master schedule interrelates all tasks on a common time scale. The project schedule should be detailed enough to show WBS task to be performed, the name of the person responsible for completing the task, the start and end date of each task, and the expected duration of the task.

There are so many techniques used for project scheduling, the basic approach of all scheduling techniques is to form a network of activities. PERT/CPM is one of the most useable scheduling technique. In this section we will try to use PERT/CPM to develop a project schedule.

#### 6.4.1 Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM) [21]

CPM and PERT are powerful tools that help you to schedule and manage complex projects. CPM helps you to plan all tasks that must be completed as part of a project. They act as the basis both for preparation of a schedule, and of resource planning. During management of a project, they allow you to monitor achievement of project goals. They help you to see where remedial action needs to be taken to get a project back on course.

**National Education Management Information System (NEMIS)**
PERT is a project management tool used to schedule, organize, and coordinate tasks within a project. It is basically a method to analyze the tasks involved in completing a given project, especially the time needed to complete each task, and to identify the minimum time needed to complete the total project. PERT planning involves the following steps:

- Identify the specific activities and milestones.
- Determine the proper sequence of the activities.
- Construct a network diagram.
- Estimate the time required for each activity.
- Determine the critical path.
- Update the PERT chart as the project progresses.

The main objective of PERT is to facilitate decision making and to reduce both the time and cost required to complete a project.

PERT planning involves the following steps that are described below.

1. **Identify the specific activities and milestones:** The activities are the tasks required to complete a project. The milestones are the events marking the beginning and the end of one or more activities. It is helpful to list the tasks in a table that in later steps can be expanded to include information on sequence and duration.

2. **Determine the proper sequence of the activities:** This step may be combined with the activity identification step since the activity sequence is evident for some tasks. Other tasks may require more analysis to determine the exact order in which they must be performed.

3. **Construct a network diagram:** Using the activity sequence information, a network diagram can be drawn showing the sequence of the serial and parallel activities. Each activity represents a node in the network, and the arrows represent the relation between activities. Software packages simplify this step by automatically converting tabular activity information into a network diagram.
4. **Estimate the time required for each activity:** Weeks are a commonly used unit of time for activity completion, but any consistent unit of time can be used. A distinguishing feature of PERT is its ability to deal with uncertainty in activity completion time. For each activity, the model usually includes three time estimates:

- **Optimistic time** – generally the shortest time in which the activity can be completed. It is common practice to specify optimistic time to be three standards deviations from the mean so that there is a approximately a 1% chance that the activity will be completed within the optimistic time.
- **Most likely time** – the completion time having the highest probability. Note that this time is different from the *expected time*.
- **Pessimistic time** – the longest time that an activity might require. Three standard deviations from the mean is commonly used for the pessimistic time.

PERT assumes a beta probability distribution for the time estimates. For a beta distribution, the expected time for each activity can be approximated using the following weighted average:

\[
\text{Expected time} = \frac{(\text{Optimistic} + 4 \times \text{Most likely} + \text{Pessimistic})}{6}
\]

This expected time may be displayed on the network diagram.

To calculate the variance for each activity completion time, if three standard deviation times were selected for the optimistic and pessimistic times, then there are six standard deviations between them, so the variance is given by:

\[
\left(\frac{\text{Pessimistic} - \text{Optimistic}}{6}\right)^2
\]

5. **Determine the critical path:** The critical path is determined by adding the times for the activities in each sequence and determining the longest path in the project. The critical path determines the total calendar time required for the project. If activities outside the critical path speed up or slow down (within limits), the total project time does not change. The amount of time that a non-critical path activity can be delayed without the project is referred to as a slack time. If the critical path is not immediately obvious, it may be helpful to determine the following four quantities for each activity:
ES – Earliest Start time
EF – Earliest Finish time
LS – Latest Start time
LF – Latest Finish time

These times are calculated using the expected time for the relevant activities. The earliest start and finish times of each activity are determined by working forward through the network and determining the earliest time at which an activity can start and finish considering its predecessors activities. The latest start and finish times are the latest times that an activity can start and finish without delaying the project. LS and LF are found by working backward through the network. The difference in the latest and earliest finish of each activity is that activity’s slack. The critical path then is the path through the network in which none of the activities have slack.

The variance in the project completion time can be calculated by summing the variances in the completion times of the activities in the critical path. Given this variance, one can calculate the probability that the project will be completed by the certain date assuming a normal probability distribution for the critical path. The normal distribution assumption holds if the number of activities in the path is large enough for the central limit theorem to be applied.

Since the critical path determines the completion date of the project, the project can be accelerated by adding the resources required to decrease the time for the activities in the critical path. Such a shortening of the project sometimes is referred to as *project crashing*.

6. **Update the PERT chart as the project progresses:** Make adjustments in the PERT chart as the project progresses. As the project unfolds, the estimated times can be replaced with actual times. In cases where there are delays, additional resources may be needed to stay on schedule and the PERT chart may be modified to reflect the new situation.
6.4.1.1 Benefits of PERT/CPM

PERT is useful for Planning and Management because it provides the following information:

- Expected project completion time;
- Probability of completion before a specified date;
- The critical path activities that directly impact the completion time;
- The activities that have slack time and that can be lend resources to critical path activities;
- Activity start and end date
- Strengthen the Planning and Management processes

6.4.1.2 Slack and critical path

- Slack is an important concept in project management because it tells the manager – after forward and backward passes are calculated – which activities can be delayed. There are two different types of slack: total and free. Total slack is, mathematically, LS – ES, where LS is “late start” and ES is “early start,” respectively. In other words, total slack lets us know the amount of time a particular activity can be put off and not delay the entire project. After slacks for all the activities that comprise the project are completed, we can establish the critical path (CP). The critical path is the network path(s) that has (have) the least slack in common.

- The other type of slack is free slack. Mathematically, free slack is ESB – EFA, where ESB is “early start” of activity B minus the “early finish” of the preceding activity, A. An activity with free slack can be delayed without delaying the ES of succeeding activities.

6.4.1.3 Slack and critical path

- Slack is an important concept in project management because it tells the manager – after forward and backward passes are calculated – which activities can be delayed. There are two different types of slack: total and free. Total slack
is, mathematically, \( LS - ES \), where \( LS \) is “late start” and \( ES \) is “early start,” respectively. In other words, total slack lets us know the amount of time a particular activity can be put off and not delay the entire project. After slacks for all the activities that comprise the project are completed, we can establish the critical path (CP). The critical path is the network path(s) that has (have) the least slack in common.

- The other type of slack is free slack. Mathematically, free slack is \( ESB_B - EFA_A \). That is, the “early start” of activity B minus the “early finish” of the preceding activity, A. An activity with free slack can be delayed w/o delaying the ES of succeeding activities.

### 6.4.1.4 A CASE STUDY: Opening a Primary School

In this session we have taken an example “Opening of a new primary school” from education system to illustrate how to develop PERT/CPM.

**Identify the specific milestones**

In first step we will divide our activity into different milestones, it is base of your monitoring system, be careful while identifying milestones of your activity. In this example our activity can be divided into following milestones:

Survey of localities, selection of site, selection of administrative head, release of funds, procurement of furniture, preparation of school site, posting of teachers, processing admissions, opening of school, preparation of timetable and assignments to teachers.

**Determine the proper sequence of activities**

Arrange the identified milestones in a proper sequence

A. Survey of localities
B. Selection of site
C. Selection of administrative head
D. Release of funds
E. Posting of administrative head
F. Preparation of school site
G. Procurement of furniture
H. Posting of teachers
I. Opening of school
J. Processing admission
K. Preparation of timetable
L. Assignments to teachers

**Construct a network diagram**

As mentioned above that a network diagram shows the sequence of the serial and parallel milestones of an activity or activities of a project. The network diagram of our activity is shown in figure 6.1

![Network Diagram](image)

**Start** → **A** → **B** → **F** → **D** → **G** → **I** → **J** → **K** → **L** → **Finish**

**Estimate the time required for each activity**

In this example we will take day as a unit of time for milestone completion, but any consistent unit of time can be used.

The succession of the milestones of the activity and the optimistic, pessimistic and most likely time (in weeks) for these milestones are shown in following table:

<table>
<thead>
<tr>
<th>Start</th>
<th>A</th>
<th>B</th>
<th>F</th>
<th>D</th>
<th>G</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>F</td>
<td>D</td>
<td>G</td>
<td>I</td>
<td>J</td>
<td>K</td>
<td>L</td>
<td>Finish</td>
</tr>
</tbody>
</table>

National Education Management Information System (NEMIS)
<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Predecessors</th>
<th>Optimistic Time (O)</th>
<th>Pessimistic Time (P)</th>
<th>Most likely Time (M)</th>
<th>Expected Time (O+4M+P)/6</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Survey of localities</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Selection of site</td>
<td>A</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>Selection of administrative head</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Release of funds</td>
<td>-</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>Posting of administrative head</td>
<td>C</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>Preparation of school site</td>
<td>D,B</td>
<td>12</td>
<td>18</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>G</td>
<td>Procurement of furniture</td>
<td>D</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>H</td>
<td>Posting of teachers</td>
<td>-</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>I</td>
<td>Opening of school</td>
<td>F,G,H</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>J</td>
<td>Processing admission</td>
<td>I</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>K</td>
<td>Preparation of timetable</td>
<td>J</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>Assignments to teachers</td>
<td>K</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 6.2: Milestones to achieve the activity of ASC

**Determine the critical path**

As we learned above in this session that for determination of critical path we first calculate early start (ES), early finish (EF), late start (LS) and late finish (LF) for each milestone of the activity and finally calculate slack by using formula (LS-LF). After slacks for all the milestones that comprise our activity are completed, we can establish the critical path (CP). Let’s start to find critical path step by step:

**Step 1: Redraw network diagram with estimated time of each milestone**

In table 6.1 we have calculated estimated time for each milestone of the activity, now we will show it on the network diagram as show below:
Step 2: Calculate Early Start (ES) time

We can easily find out the duration of the activity by simply using forward pass of the network diagram as shown in figure 6.2. By doing forward pass we can also find out the ES of each milestone in our activity. What we can do is very simple; we will take first node of network diagram and move forward to reach the last node of the activity. At each node we will find out how much time will be required to reach at particular node. Node A is a first node, its mean we will start our activity from this node, so to reach at this node we will take no time; hence the ES of node A is 0. Now coming to node B, this is going to be start after 2 weeks as soon as node A completes its time, similarly ES of node C is also 2 weeks. What we do is simply add the estimated time and ES of predecessor node that is in this case node A. repeat the same process until the last node of network diagram. You will notice that there are two passes to reach at node F that is from nodes B and D. If we come from node B then ES of F will be 3 while if we come from the other side that is from node D then ES of node F will be 4. In this situation we will consider the maximum time duration as ES of the particular node, hence the ES of node F will be 4. The network diagram with ES is shown below:
Step 3: Calculate Late Start (LS) time

Now we will find out the LS time of each node by using the backward pass of the network diagram. We will start from end of the network diagram and use backward pass to reach at the start of the network diagram. At each node will be finding the LS time by simply subtracting estimated time of predecessor node from ES time of current node. However, in case of first node while using backward pass that is node ‘L’, LS will be equal to ES. For example if we find out LS of node K, follow the following formula:

$$LS (K) = LS (L) - \text{Estimated Time (K)}$$

$$LS (H) = 26 - 1 = 25$$

In the similar fashion we can find out LS time of rest of the nodes in network diagram as shown in figure 6.4.
Step 4: Find Critical Path

The critical path is the network path(s) that has (have) the least slack in common. Notice that the slack values for all nodes in path A -> B -> F -> I -> J -> K -> L are 0. Hence, this is the critical path because it is the path with the least slack in common as shown in the figure 6.5.
Once the critical path is known, time and resources can be tightly managed and costly mistakes can be minimized or eliminated. If some unexpected delay does arise in the critical path, it is possible to identify the activities on the critical path that cost the least to shorten. Activities on others paths may also need to be shortened.

**Update the PERT chart as the activity progresses**

Make adjustments in the PERT chart as the activity progresses.
SESSION 7  
PLANNING AND MANAGEMENT TOOLS

Objectives:

At the end of the session participants will be able to

- Perform SWOT Analysis for educational planning and management.
- Understand the use of MS project for planning and management.

What we will learn

- The parameters for SWOT Analysis and how to define and use them.
- How to develop a project plan using MS project.
- Using the MS project to manage the project.

Total Time: 3 Hour

<table>
<thead>
<tr>
<th>Duration</th>
<th>Activity</th>
<th>What is needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hour</td>
<td>Presentation on SWOT Analysis</td>
<td>- Presentation on Slides</td>
</tr>
<tr>
<td>1 Hour</td>
<td>Presentation on MS Project</td>
<td>- Presentation on Slides</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Running the MS project software</td>
</tr>
<tr>
<td>1 Hour</td>
<td>Group Work</td>
<td>- Creation of Groups, Group Activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Group Presentations</td>
</tr>
</tbody>
</table>

Introduce the Objective of the session and the activities

Activity 1:
- Make a presentation on SWOT Analysis.

Activity 2:
- Make a presentation on MS Project
- Demonstrate the actual running of MS Project software

Activity 3:
- Create groups and give them assignment on SWOT analysis and MS Project
- Presentations by group representatives

National Education Management Information System (NEMIS)
7. PLANNING AND MANAGEMENT TOOLS

This session introduces some of the widely used planning and management tools, namely SWOT analysis and the Microsoft’s MS Project software.

7.1 SWOT ANALYSIS

S.W.O.T stands for strengths, weaknesses, opportunities, and threats. Completing a SWOT analysis will help us identify ways to minimize the effect of our weaknesses while maximizing our strengths. We can use our strengths to create opportunities as well as minimize threats.

SWOT (strengths, weaknesses, opportunities, and threats) analysis is one of the most effective tools to assess the strategic situation and identify strategic options for organizations or firms. A strength is a resource that the organization can use effectively to achieve its objectives. A weakness is a limitation, fault, or defect in the organization that will keep it from achieving its objectives. An opportunity is any favorable situation in the organization’s environment. A threat is any unfavorable situation in the organization’s environment that is potentially damaging to its strategy.

Strengths focus on the things that we do WELL as a department. Weaknesses focus on the things we do that we need to IMPROVE. Thus strengths and weaknesses focus internally. Opportunities and threats reflect factors external to the department that are often out of our control. Opportunities can create conditions that offer the potential for us to reinforce and/or expand our strengths. Threats may present barriers to maintaining our strengths and/or create conditions that exacerbate our weaknesses [21].

7.1.1 SWOT ANALYSIS ORIENTATION INFORMATION

A SWOT analysis is a tool that helps you evaluate the Strengths, Weaknesses, Opportunities, and Threats (SWOT) involved in your system, including schools and offices. SWOT analysis can help you gain insights into the past and think of possible solutions to existing or potential problems — either for an existing business or new
venture. For a SWOT analysis to work well, every member of your team (your family and/or employees, accountant, admin officer etc.) should be involved in the process.

Your SWOT analysis reflects your candid and honest HOLISTIC perceptions of the department. It is NOT a personal analysis of your strengths and weaknesses or the threats to you personally NOR is it an analysis of others’ strengths and weaknesses.

**Strengths**

Strengths are considered mostly internal. For example, what do you and your employees, and management team bring to the business? If you are planning to open a new school, you or an employee may have previous experience of working with schools. If not, this may be viewed as a weakness. If you already know where to go to find the help you need, this would be considered as strength for this analysis.

**Weaknesses**

Weaknesses are also generally considered internal and are the factors you will need to address to run a successful program or project. For opening a new school, an example might be a lack of experience in the selected industry. Another example may be that your management does not completely support you in this venture. You may lack qualified employees. If you identify these as weaknesses, don’t worry because existing project may have similar weaknesses.

**Opportunities**

Opportunities are considered mostly external. What opportunities are available for your program or project? You may be able to take advantage of facilities available in the area where you plan to open new school.

**Threats**

Threats are also considered mostly external. Threats from outside of your program or project will directly affect you, but you may have very little control over them. If you are opening a new school, there may be local community that negatively impact on your school. Qualified teachers are not available in local community. Many of these threats
will also negatively affect existing schools. More salaries offered by private sector may have a greater impact on public sector school.

### 7.1.2 SWOT ANALYSIS SHEET

<table>
<thead>
<tr>
<th><strong>STRENGTHS</strong></th>
<th><strong>WEAKNESSES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>OPPORTUNITIES</strong></th>
<th><strong>THREATS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please provide your sincere and honest assessment of the strengths, weaknesses, opportunities and threats. Please write your responses in the appropriate box. The questions posed in each box are offered as a way of getting you started as are the possible types of factors listed below. You are not limited to these questions or constrained by the example factors. The range of factors (can either positives, negatives, or both) that might be identified in a SWOT analysis include, but are not limited to:

- Fiscal/budget/economic
- Political
- Legislative
- Facilities
- Technology
- Market demand
- Accreditation
- Partnerships

National Education Management Information System (NEMIS)
7.1.3 SWOT ANALYSIS OF OPENING A NEW PRIMARY SCHOOL

Here is an example of opening a new primary school in rural area of the province. The district management needs to conduct a SWOT analysis. Read the example and conduct your own SWOT analysis for the district management. When you are done, you can check your answers against the answers prepared in this session of the SWOT analysis tool. Those answers are on the page after your fill-in-the-blanks page. If your answers are close to the experts’ answers, you are ready to do your own SWOT analysis.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Highly experienced and dedicated team</td>
<td>- Lack of persistent vision and policy</td>
</tr>
<tr>
<td>- Availability of facilities like water and electricity in the area</td>
<td>- Financial situation is not established yet</td>
</tr>
<tr>
<td>- Strong commitment by the government</td>
<td>- Management position tends to depend by political parties than by qualification.</td>
</tr>
<tr>
<td>- Site for new school is available</td>
<td>- It is the corruption that worries most.</td>
</tr>
<tr>
<td>- PC-1 is already approved</td>
<td>- Lack of campaign</td>
</tr>
<tr>
<td>- Excellent geographic location to provide service locally and regionally</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Increase literacy rate</td>
<td>- Political instability is primary concern</td>
</tr>
<tr>
<td>- Provide new job opportunities</td>
<td>- The sudden changes in political agendas pose a serious threat to</td>
</tr>
</tbody>
</table>

• Way to achieve EFFA goals
• Attract community
• Provide quality education

implementation of the project
• Lack of public support and community collaboration.
• Competing and conflicting interests of the different political groups pose an additional threat.
• Lack of qualified teachers in local community
• High prevalence of poverty
• Delays in construction work

7.2 MS PROJECT [31]

Developing an educational project, publishing a newsletter, implementing a training program, starting a new business or even building a new school are some of the projects that millions of people embark upon every day. How does Microsoft Project help in doing this? It helps us put together a plan of action, fill in and organize all the details that must be completed in order to achieve our goals. Right from building a new project to preparing our project for publication, tracking progress, analyzing costs, assessing the quality of the project and managing multiple projects, Microsoft Project does it all. In this session, we will introduce briefly the main features of MS Project and how we can use these features while planning and managing our projects.

Defining the project

Start by defining the properties of the project that you are going to manage. You need to know the start date and the basic operating rules of the organization. Go to Project from menu bar and click on Project Information, a new form will be opened as shown in figure 7.1. Enter start date of the project and click OK button. MS Project also gives you some options to be set for your project. You should set these options according to your requirements (figure 7.2 and 7.3). For example, by default the MS Project sets January as a start of fiscal year and Sunday as start of week, you may change these settings according to your requirements.
Figure 7.1: Project information form
If you’re new at this, it might be a good idea to leave these on. They have been turned off for the samples in the tutorial.

This will be used to calculate costs. It can be left until later.
Break the whole project into individual tasks

This may not be as easy as it sounds. You want the tasks to be small enough to be manageable but, not so small as to involve the atomic level. This will draw on the experience of the project manager. Normally, a task involves one person or a small group of people over a span of time that can be measured in days. Don't worry that the tasks all last 1 day and start on the same day.
Now, you will probably want to group tasks under phases. In MS Project, grouping is done from the top down with Final total at the very top, with Subtotals below and so on.
Select tasks then use indent button to show that they are grouped under the heading.

A Group will be generated.

Totals and Subtotals work from top down.

Insert a New Task at the top and Indent everything underneath to get Project Totals.

Figure 7.6: Group tasks

Figure 7.7: Attendant tasks
Defining a Timeline

The next step is to define the duration of all the tasks. Again, you need to draw upon the experience and knowledge of the experienced manager and the participants. You want to obtain a value that is as realistic as possible for the duration of each task. That may have to be negotiated. If there's disagreement, a simple formula to establish a value has been around for years:

Find an optimistic value, \( D(o) \), a pessimistic value, \( D(p) \) and a realistic value, \( D(r) \).

Then: \[ \text{Duration} = \left( \frac{D(o) + D(p) + 4 \times D(r)}{6} \right) \]

![Microsoft Project - Opening of a Primary School](image)

Since all tasks start on Thu 6/23/11, duration of project = duration of longest tasks, for now

You now have duration for each of the tasks but they all start on the same day. Obviously, you will have to specify the sequence of the tasks and the links between them. In MS Project a task that must be completed before another task can start is called a **predecessor**.

The first task has no predecessor and each of the following tasks has to have at least one. In some cases a task may have several predecessors meaning that several
tasks have to be completed before that one can start. In other cases a task may be predecessor to several others - its completion can allow several other tasks to start.

Figure 7.9: Project scheduling

**Importance of Tracking Progress**

For over 40 years project manages have been using techniques to manage their projects effectively. Some of these techniques were manual to begin with and were later computerized.

Two of those techniques are called **Critical Path Method (CPM)** and **Program Evaluation and Review Techniques (PERT)**. They were similar and now we often find the technique referred to as: CPM/PERT. The technique involves using network models to trace the links between tasks and to identify the tasks which are critical to meeting the deadlines. When you have a large number of tasks overlapping you really have to use the right tool to show which tasks can be delayed and which must be on time. Once you've identified the **critical path**, any delay on any part of the critical path will cause a delay in the whole project. It is where managers must concentrate their efforts. In MS
Project, you use the **Tracking Gantt** diagram to show the critical path in red and you can see the PERT diagram by looking at the Network view.

![Tracking Gantt and Critical Path](image)

You’ll want to track the degree of completion of each of the tasks. You could do that every day as you go along. As soon as something starts to go off track, you can react and adjust accordingly. It would be too long to go into the details of how to compensate for delays and so on.

![Network view of the project](image)
Figure 7.12: Percentage of work completed

Manage the Project Resources

You will need people to accomplish all those tasks that you’ve identified in the previous section. Those people are resources that you have to manage well in order to achieve the project’s objectives. You may also need some material resources - equipment, supplies, and specialized environments - which you will have to schedule and pay for. You can easily include the management of resources in MS Project along with the tasks because, after all, the resources are essential to the accomplishment of the tasks in the first place.

You must start by identifying the resources available along with their costs. Resource costs will be multiplied by duration to calculate project costs. You have to open the Resource sheet (View -> Resource Sheet) to specify the project resources and costs.
To track costs, you insert a **Cost** column (Insert -> Column) next to the Resources column. When you assign the resources to each task, the costs will be calculated and displayed.

You assign resources, people or material, to each of the tasks. A task may have several resources.
Of course, there are many, many other things that MS Project can do. We have barely scratched the surface. For example, we have assumed so far that everything will proceed as planned. But what if it doesn't?

There are many functions to help you deal with delays, cost overruns, etc. You can learn how to schedule overtime, split or overlap tasks and so on. (You can get MS Project help from Microsoft online help library available at http://office.microsoft.com/en-us/project-help/).
SESSION 7: GROUP WORK

Objective:

At the end of the session participants will be able to

- Review all the topics covered during previous sessions.
- Apply the newly acquired knowledge to practical problems/case studies.
- Provide feedback about their experience with these techniques.

What we will learn

- How to choose and apply Planning and Management tools and techniques depending on situation.
- Practical difficulties related to application of skills.

Total Time: 1 Hour 30 Minutes

Agenda

<table>
<thead>
<tr>
<th>Duration</th>
<th>Activity</th>
<th>What is needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Minutes</td>
<td>1. Summary of topics covered during workshop</td>
<td>- Presentation of topics</td>
</tr>
<tr>
<td>30 Minutes</td>
<td>2. Post-training assessment</td>
<td>- Prepare post-workshop test</td>
</tr>
<tr>
<td>30 Minutes</td>
<td>3. Open discussion</td>
<td>- Key Points</td>
</tr>
</tbody>
</table>

Introduce the Objectives of the session and the activities

Activity 1:

- Prepare at-least five different assignments

Activity 2:

- Conduct post-training assessment test

Activity 3:

- Open discussion and conclusion of workshop

National Education Management Information System (NEMIS)
Planning Assignment-1

Problem  There is an acute shortage of Secondary School Teacher (SST) Science in schools. Reports from head teachers show that the shortage of SSTs Science is seriously affecting the quality of teaching and learning in schools.

Situation  Keeping high demand of science education, it is proposed that at least 45 per cent teachers should have science background. Furthermore, it is assumed that SSTs for science have an average 5 per cent turnover rate.

Requirement  You need to ensure the availability of science teachers in your schools. Estimate the current per cent of your science teachers and you are now required to submit a plan, with the provision that 45% per cent of the teachers have adequate science background within five years. The plan should incorporate all necessary costs including salaries, allowances etc. You may wish to propose special science allowance to attract science teachers.

Planning Assignment-2

Problem  The placement of teachers in schools has not been made on need-basis. Due to this specific subject teachers are not available in all schools.

Situation  Most of schools do not have need based distributed teachers of different subject. There are some schools which might have all required available teachers.

Requirement  You need to plan transferring the services of teachers to schools on the basis of their subject specialty and on schools’ need in your district. Each school needs to have adequate number of teachers to teach. Please develop the transfer plan on the basis of a) total number of schools, and, b) number of teachers with specific subject specialty.
Planning Assignment-3

Problem Most of the science teachers from High Schools are not trained. A report shows that the quality of teaching in science subjects is not up to mark. Due to this serious learning deficiencies and growing dropout rates occurs in most of schools.

Situation Science teachers are willing to participate in training courses. A development partner has offered to train 60% of existing science teachers, who need to be trained. Female teachers do not wish to travel due to cultural constraints. This entails arranging school-based training sessions. Some of teacher might need to near retirement age; therefore we may not wish to include them for substantial training courses.

Requirement You need to develop a proposal for allocating necessary funds for the professional development of the untrained teachers (in-service). While developing the proposal, please do consider the overall cost. Your proposal should give details about the basis of your decision for nomination on priority basis, based on relevant data.

Planning Assignment-4

Problem The basic facilities in some of institutes of your district are missing. This has caused problems in the school environment and ultimately affected students.

Situation A survey report shows that secondary (middle & high) schools have shortage of some basic facilities such as drinking water as well as non-functional latrines. Provincial government has provision of phase wise (3 year) budget for high priority institutes at levels for the provision of above mentioned missing facilities.

Requirement Prepare a proposal specifying the actual number of institutes of above levels which lack the above mentioned basic facilities. Also prepare a phase wise list of institutes to prioritize them in context of gender. An estimate of budget is also required for the provision of these facilities.
Planning Assignment-5

Problem
Due to the retirement of upcoming cohort of staff you may have shortage of teaching staff.

Situation
Some of your teaching staff, at higher secondary school level, is going to be retired in the upcoming twelve months. Provincial government has announced to lift ban on teachers’ recruitment.

Requirement
You need to develop a comprehensive plan for teacher recruitment for your schools. Whilst developing the plan, please consider the following requirements.

- Specify the total number of teachers to be retired during the coming twelve months.
- Approximate amounts to be paid to retiring teachers --- terminal benefits as well as pension for 5 years.
- Amounts to be paid for the new teachers to fill gap.
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National Education Management Information System (NEMIS)
ACKNOWLEDGMENTS

We feel great pleasure in developing this training manual and wish to thank all those people who contributed in many ways to the preparation of this manual. The shared technical knowledge, experiences, and perspectives have produced a tool that will have a significant positive impact on the capability of educational managers at district level in effective use of data for planning and management.

Special thanks are extended to the management of Ministry of Professional and Technical Training (P&TT) and AEPAM for their patronage and support in development of this manual.

The preparation of this manual would not have been possible without the support provided by ED-LINKS, a USAID funded project. ED-LINKS provided financial support for preparation and printing of the manual. It is pertinent to mention here that most of the contents of this manual have been used during ED-LINKS supported training workshops on “Use of data for educational planning and management”. A total of 180 education managers from Sindh, Baluchistan and FATA were trained in use of data for planning and management.

We appreciate the hard work of ED-LINKS team. Special mention should be made of Mr. Irfan Majeed Butt, Deputy Regional Director, ED-LINKS, and Ms. Rabia Masood, Program Advisor ED-LINKS for identifying this very important area for training. They were instrumental in making possible this collaboration between ED-LINKS and NEMIS-AEPAM.