

Population Education–II

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Nine units of the course have been again revised in the year, 2011-12 in collaboration with UNFPA Islamabad. The contributions of Mr. Saqib Ali Khan (Late) representative of UNFPA in the context are highly acknowledged.

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FORWARD

Population education has emerged as an area of prime focus within a relatively short period of time. Generally, the industrialized countries have less problems with increased population. However, the unprecedented explosion of population in developing countries has made it extremely serious issue for further growth. There are multidimensional approaches being adopted to face this issue. Population education is an educational approach to population problem. It has gained ground and proved its worth specially in developing advance awareness among target population. In almost all developing countries population control projects have been launched with a variety of nomenclatures, purposes and strategies. This particular book is expected to enhance the quality and standard of human life through education of people.

Efforts of many international agencies like UNFPA, World Bank, UNDP and UNESCO are above all appreciable in this connection. The course in hand has been developed with collaborative efforts and auspices of UNESCO Principal Regional office for Asia and Bangkok. The personal efforts of Dr. Ansar Ali Khan are commendable. The writers of this course are experts of this field and come from various seats of learning. They all have already contributed a lot in their own capacity. Their expertise and contributions in this course are worthwhile and deserve due recognition. Presently, the department has reviewed and updated data of the course, in collaboration with UNFPA, Islamabad.

Special thanks are due to Mr. Saqib Ali Khan and Ms. Sadia Atta of UNFPA for their valuable contribution in this connection. I would like to offer thanks to all experts who have contributed a lot in reviewing the course.

Finally, I would like to extend my facilitation to Dr. Hamid Khan Niazi, Chairman and Dr. S. Manzoor Hussain Shah, Course Coordinator on the successful completion of this academic task.

Dr. Nazir Ahmed Sangi
Vice Chancellor

COURSE INTRODUCTION

Population education course through distance education has been developed with a view to provide proper theoretical background information and understanding regarding implications of rapid population growth. The course addressed particularly those who are planners, managers and administrators, and workers of population education projects and related activities and generally all those who care for social and economic welfare of their societies and want to increase the quality of life. The course materials have been developed keeping in view the mode of distance learning. It consists of 18 study units. Each study unit is roughly estimated to be a one week study material to be used at home according to the convenience of the reader. Contents of each unit have been well organized and arranged in a sequential manners self assessment questions and practical activities have been interwoven in the text.

OBJECTIVES OF THE COURSE

Following are the objectives of the course. After studying the course and completing the requirements, the learners should be able to:-

1. Understand and discuss the dynamics of population and process of population growth.
2. Be aware of and explain the concept of population education, its purposes, contents approaches and strategies.
3. Understand and express the modes of introducing population education programmes and project.
4. Comprehend and discuss the task and functions of planning, management, monitoring and evaluation of population education programme.
5. Prepare and formulate population education schemes and projects in the national contexts.
6. Conduct researches and exploratory activities in population education.
7. Prepare conduct and arrange training activities.
8. Identify the plug points and key agents in introducing population programmes.

UNIT 1

PLANNING FOR POPULATION EDUCATION

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INTRODUCTION

Since the concept of population education was formulated in response to the population problem and to supplement family planning programmes, it is sometimes misunderstood both within and outside the education system as another name for sex education or family planning. Even some definitions of population education include sex education, birth control and family planning education. In fact, it is an education to make people aware of the processes and consequences of population change on the quality of life to the micro and macro levels so that they may be in a position to make informed and rational alternative choices in conformity with the development goals. Population education was identified as "an education programme which provides for a study of the population situation in the family, country, nation and with the purpose of developing in the students a rational and responsible attitude and behaviour towards that situation".

As an educational programme, the population education is aimed at enabling the young and adults to acquire knowledge and understanding about population dynamics, the causes and consequences of population growth, the inter-relationship of population change to development, as well as the components of quality of life – health, housing, environment, food and nutrition, education employment and social services.

OBJECTIVES

After studying this unit you will be able to:

1. Define the term 'Planning' clearly
2. Describe the kinds of planning
3. Explain the planning process
4. Write the stages of planning
5. Formulate the project on population education
6. Clearly identify the constraints in population education planning
7. Describe the strategies and approaches being used in planning the population education programmes
8. Develop population education programme for your community.

1. PLANNING

Planning is the act of preparing a set of decisions or choices for future action in such a way that the available resources (human and material) will be properly used to achieve desired goals. Planning differs from policy, decision-making or administration. Policy is a general statement to guide decision-making, decision-making is about choosing from among alternative courses of action and administration means using appropriate procedures to carry out decisions already made. Planning covers both what is to be done, when, by what means, by whom, and for what objectives. Planning implies chalking out a direction for future action to achieve pre-determined objectives through the optimum use of available resources. Planning is anticipatory decision-making. It is a process whereby a system selects outcomes and courses of action in a series of interrelated choice situations which have not yet occurred, but which are envisioned to occur in the future.

2. TYPES OF PLANNING

There are two interrelated kinds of systematic planning, each of which has different purposes strategic planning and management planning. Each of these may be utilized for both long and short-range planning, as well as for comprehensive planning or planning concerned with some aspect of education.

- 2.1 Strategic planning**, which fosters and requires productive relations and linkages with public agencies and groups other than those directly responsible for education, should receive primary attention because it involves the determination of policies and the establishment of new or revised goals and objectives. This concept should be of special interest to educational leaders who have a major responsibility for developing and implementing plans because, if properly utilized, it will help to ensure the commitment and support that is essential to facilitate needed changes.
- 2.2 Management planning** On the other hand it is concerned with the effective and efficient attainment of goals and objectives that have been agreed upon and accepted. It may therefore, be conceptualized as that portion of the planning process that is implemented after the basic decisions relating to goals and policies have been made. Through appropriate management planning, those responsible for the implementation of the decisions should be able to ensure that all goals and objectives are achieved.

Everyone concerned with education, needs to understand that strategic and management planning are interrelated in many ways and that, from a long-range point of view, the effectiveness and meaning of each will be determined primarily by the effectiveness and meaning of the other. Unless appropriate goals and policies are identified and accepted through strategic planning, even the most effective management planning will have limited significance. Otherwise, unless management planning ensures that the goals are effectively achieved and policies implemented, many of the potential dividends from strategic planning will be lost.

Self-Assessment Test-I

Here are some statements. Tick the letter 'T' if the statement is true. If the statement is false, tick 'F'.

- | | | |
|---|---|---|
| T | F | Strategic planning can only be used for short-term planning |
| T | F | Management planning is concerned with the attainment of objectives. |
| T | F | Strategic and management planning are interrelated |
| T | F | Strategic planning requires relations only with the agencies responsible for education. |
| T | F | Management planning is the portion of planning process implemented after the decisions on goals and policies are made |

3. STAGES OF PLANNING

The educational planning process comprises several phases or stages. More important of these are:

3.1 Pre-Planning

The principal task in the pre-planning stage is formulation of educational objectives and their approval by the appropriate authorities. The next steps would be:

- determining planning procedures
- creation of administrative machinery
- collection and analysis of relevant data

3.2 Planning

The second stage in the process is planning. The main steps in the stage are:

3.2.1 Diagnosis

Ascertaining the adequacy of current educational programmes and facilities. The purpose is to identify weaknesses and shortfalls in nature, magnitude, quality and level of achievement of educational objectives. In particular, the diagnosis is based on the criteria of:

- relevance** to social aspirations;
- effectiveness** in achieving national objectives;
- efficiency** in the use of resources

3.2.2 Policy

The diagnosis of the existing situation would reveal deficiency which need to be removed with a view to enhancing relevance, effectiveness and efficiency. Such a corrective action has to be based on the national educational policy spelled out by competent authorities.

3.2.3 Costs

Costing of future needs is the next step. It would help determine the magnitude of financial outlay which should be available if the determined needs are to be satisfied.

3.2.4 Targets

By extrapolating data pertaining to past trends, the educational planner sets targets and establishes priorities, of course, keeping in view the resources likely to become available in the future. He also examines alternative means of achieving the objectives.

3.2.5 Feasibility

The targets may be set according to the identifiable needs and the priorities assigned to them. But they have to be subjected to feasibility testing to ensure their consistency and achievability.

3.3 Plan Formulation

It is the preparation of brief, but adequate statements for:

- i. enabling the appropriate national authorities to make decisions and approve the programme and
- ii. providing a blueprint for action and implementation.

3.4 Plan Elaboration

Before an educational plan can be implemented, it has to be elaborated so as to clearly identify individual action units. The process of elaboration passes through:

3.4.1 Programming

It divides the plan into broad action areas each of which aims at accomplishing a specific objective. A programme comprises activities usually supervised by the same administrative unit.

3.4.2 Project formulation

A project aims at achieving a specific sub-objective within the main objective of the programme. Project formulation is working out the details of costs, time and schedule etc. for various activities to be launched.

3.5 Plan Implementation

It is the taking up of individual projects for execution. Here the planning process merges with the management process. Based on the annual budget, an organizational framework is developed for various projects. The resources (men, money and materials) are mobilized to implement the projects of the plan.

3.6 Plan Evaluation

During the implementation of the plan, constant evaluation of the rate of progress and detection of deviations continues. This evaluation highlights weakness in the plan's unrealistic targets, inadequate financial provisions, improper phasing and throws up matters for necessary revisions. It thus provides the basis for re-planning.

4. PROJECT FORMULATION

A project is a planned undertaking, a unit of management that clearly specifies what is to be accomplished, over what period of time, and at what cost. A cluster of projects with specific time phase for the accomplishment of intermediate objectives is contained in a programme. A programme, in turn, is an intermediate activity which breaks down the strategic decisions of a plan into different components, or projects, which are technical and short-term in nature. A programme is usually a part of a complex structure for plan implementation.

Thus a plan encompasses both the programme and the project. The plan reflects organizational objectives while the programme is a part of the plan designed to accomplish intermediate or carrying out of specific components of the plan according to the programme. In certain sense, because a project is an output-oriented activity, it is an

active concept whereas the plan and programme are passive in their nature of mainly providing goals, directions, strategies and the overall framework for implementation.

4.1 Project Phases

There are many phases or action sequences in the life of a project. These are as below:

4.1.1 Project Identification

The first phase of a project starts with the study of the environment within which the project is to be implemented. It involves learning about the forces, conditions and institutions that are relevant to the project. Based on the study of the environment, one may be able to develop an understanding about:

- i. the availability of resources
- ii. the demand for output
- iii. existing government priorities
- iv. programme thrusts, and relationship with other projects
- v. relevant social trends
- vi. possible constraints and hazards and
- vii. the nature of project appraisal

Such an examination will be useful in assessing the potential ideas and innovations about the project. It would also lead to a better understanding about the parameters/constraints within which the project is likely to be implemented.

4.1.2 Project Formulation

The detailed project formulation is the next step. Before arriving at the strategy to be utilized in the project, a planner should:

- analyze basic requirements to conduct project through;
- estimate resources needed for meeting expenditures, engaging personnel, within the given time-frame
- estimate economic yields and other social benefits
- list possible obstacles and other problems and
- examine options and available alternatives vis-a-vis each of the above.

While preparing the project document the following aspects need to be included and stated explicitly:

- i. **Title:** This should reflect the main ethos of the project in clear terms. It should be self-explanatory. If it is necessary a second sub-heading should be provided. The main activity to be undertaken, its possible methodology, the region it relates to and special target group it focusses upon, if any, may find place in the title itself. However, the simplicity and attractiveness of the title (preferably that of its acronym) must be given careful thought.
- ii. **Rationale:** This section should provide the rationale and the justification of the project. It could do so both in terms of the overall national/provincial policy and also in terms of the micro issues/ reasons that justify the selection of that particular

region for the implementation of the project. If possible, reference may be made to the earlier efforts made in this regard with the help of peoples participation and community's involvement. If there are some examples of similar project being launched elsewhere, these may also be referred to in the project document.

- iii. **Objectives:** These are the broad objectives of the project. For example, it could cite achievement of universal literacy or achievement of literacy in the case of the female population of the project area as one of its objectives. Similarly, it could cite increasing the employability or performance of skills of students as one of its objectives. Normally a project may have two to four, or even five objectives. However, there is no hard and fast rule to this.
- iv. **Target:** The target is the expected outcomes expressed in quantitative and qualitative terms within a definite time frame. If it is possible, a target should be specified for each period during the operation, so that the progress could be monitored periodically.
- v. **Activities:** The targets fixed for the period have next to be broken down into specific activities which need to be undertaken. For example, if the target was to improve enrollment in the local school then the activities may be to undertake household survey to identify the children not attending the school, or to launch a community drive or to improve the quality of teaching and provision of better facilities in the school. Each activity must be defined according to:
 - function of activity in relation to the project .
 - time to be conducted
 - area of coverage
- vi. **Project scheduling:** This should include: (a) duration of a project; (b) activities at different periods of time; and (c) responsible organization and personnel.
- vii. **Resources:** In this section the resource requirement of the project is spelt out. It may include financial, material and manpower resources as well as the time frame in which these would be required. It is advisable to present resource requirement under specific budget heading. Consumable resources should be stated separately from the fixed assets, or infrastructural requirements.

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

- a. **Gantt bar charts:** This simple device enables the commencement and the duration of each project activity to be represented as a bar on a calendar.
- b. **Flow charts:** The flow of work in a project is charted from commencement to completion. This technique is useful for at least a moderate-sized project in which a number of activities are to take place. A flow chart would help to simplify the complexity of various stages to be undertaken. It should show the order in which various activities

are going to take place and should also indicate the mode of operation.

4.1.3 Project Appraisal

A project can be appraised along following levels:

- i. **Preliminary Appraisal:** The project is assessed in general form. It is checked whether it has been submitted within the given time frame i.e. before the dead-line, and whether it has been submitted to the right place. What has been the route of its submission? Is it in the proper format? Have all the enclosures and other related documents been submitted alongwith?
- ii. **Feasibility Study:** At this stage, the project is examined technically and more comprehensively. Special attention is paid to the design of the project. The assumptions that are made in the project and the proposed generation/use of data is examined closely alongwith instruments of survey, if any. Even the resource requirements and the time frame are examined in the context of the total task being proposed. This examination being technical in nature is usually undertaken by experts/experienced personnel.
- iii. **Appraisal:** At this stage, the project is evaluated in its total context. Special attention is given to the technical report on the project described under feasibility. But in addition to it, the agency undertaking the project and the main ethos of the work are also given due consideration. If it is felt that the technical aspects of the project should be suitably amended, redrawn or modified as per the expert advice, this decision is also undertaken at this stage. In other words, appraisal is done in a holistic manner to gather a total view about the proposed project.

4.1.4 Project Authorization

The approval of a project follows its appraisal. As mentioned earlier "approvals" by technical, financial, political and administrative officials may take place before final authorization.

4.1.5 Project Implementation

The project manager pools together various resources and skills to achieve specific objectives within a budget and time table. The skills required will vary according to the nature of the project. The organization for project implementation usually takes into consideration a number of factors: the form of organization, arrangements to be adopted, the relationship of the implementing unit with the parent organization, the degree of independence from established administrative requirements, the safeguards to ensure accountability, winding up and evaluation of the project at its termination.

Project implementation crucially depends upon the availability of resource inputs in adequate quantity and acceptable quality. Effective planning would require that these resources be programmed so that they may be available when needed.

Action planning and control are two interrelated functions in the project implementation process. The former concerned with the setting of goals, the identification of activities, allocation of inputs and the setting up of schedules. The

later is concerned with the assessment of the degree to which progress is concerned towards the objectives, the determination of the causes of deviations, and the adoption of corrective measures.

4.1.6 Project Monitoring

The principal objective of a project monitoring system is to develop effective means of assessing the progress. Its main objective is to oversee the decision making in implementation process and to record the achievement of the project's objectives. Monitoring also serves as the link between project implementation and planning. It documents experiences in implementation stage which provide useful data for planning the next phase or a next project.

Project monitoring enables the manager to adjust to conditions obtained in the execution of the project so as to achieve the desired goals within the desired time frame. The project schedule may be revised by updating cost or time estimates. To accomplish these functions, the reporting and management information system should include physical measurements of accomplishments, status of resources especially funds, and problems encountered.

4.1.7 Project Evaluation

Project evaluation may be conducted during a project or after its completion.

The evaluation of on-going projects will indicate the progress of implementation based upon the plan. It will also show if the input requirements are adequate and, in time, and whether conditions for effective implementation are available in the organization.

Evaluation is also directed towards the assessment of the extent to which output objectives have been attained. It is also a useful indicator for reviewing the planning and implementing experiences as they relate to the supply of inputs, the role of environmental factors and the accuracy of estimates.

SELF-ASSESSMENT TEST-II

1.	Here are some statements. Tick the letter 'T' if the statement is true. If the statement is False, tick 'F'	
T	F	The planning process starts from the objectives
T	F	Programming divides the plan into broad action areas.
T	F	A project is collection of programmes.
T	F	Project identification starts with the study of the environment within which the project is to be implemented
T	F	Evaluation refers to the assessment of on-going and completed projects
2.	Arrange the following stages of planning in logical order: planning, plan formulation pre-planning, project formulation, programming, evaluation, implementation.	
3.	Briefly discuss the planning process.	

5. CONSTRAINTS IN POPULATION EDUCATION PLANNING

In this section, we identify the factors which raise problems in the development of programmes of population education. Planners most of the time have to envisage specific activities aimed at minimizing the constraints and making the best use of opportunities. Where the constraints arise from wrong perceptions about the nature of population education or from a lack of awareness of its potential contributions, these activities may be designed to promote support, participation and co-operation. Where the constraints are due to the lack of resources, the activities may involve identifying existing resources and developing ways in which they can be pooled. These two goals can often be combined; providing information about population education, to those people whose interest or support is desired. In this way, activities can be integrated with the opportunity for them to contribute to programme planning and development and in so doing; to help shape the programme to meet their needs.

5.1 The Socio-Political Context

One of the first stumbling blocks to the development of population education programmes may be the way people actually perceive population education and extent to which they understand its significance. In the early stages, at least, this perception may be more important than the reality as recognized by the planners. The difference between perception and reality is sharpened by the fact that population education activities have not usually evolved from within a community or a society but have nearly always been initiated from above - from ministries, from private organizations and from elites; all of them often responding to initiatives from international agencies. The planners need to be particularly careful to include activities which will increase the people's understanding of population education and help them recognize its potential value. This kind of objective might be achieved through the media and through awareness - motivation activities which reach opinion leaders in the community, e.g. labour leaders, teachers, journalists, preachers, etc.

All countries have policies and plans for national development which, explicitly or implicitly, contain population components. Population education activities can and should be more closely related to these overall plans. This is essential and possible - whether the policies are anti-natalist or pronatalist, or concerned with changing patterns of population distribution or with changing rates of growth. It is important that policy-makers, in considering immediate or short-term "solutions" to population problems (no matter how defined), should begin to think of the more distant future and to make educational programmes an explicit part of policy, integrated with overall population planning and development strategies. Population education planners may need to "educate their masters", the policy planners, in order to achieve both commitment and planning integration. Meeting or seminar workshops could be organized for policy-makers and planners in population-related subjects, in order to encourage joint consideration of the national population situation and its implications for socio-economic development.

There is another way, too, of looking at this problems of coordination within a nation. In many countries, population policies announced at the highest levels of government have not attached the attention and support of all bodies whose cooperation is needed for effective implementation. For instance, ministries of education have not always seen the development of population education programmes as a matter of high priority. It may, therefore, be the duty of planners of population education programmes to find out ways of making clear to educators that population education is relevant to the policies and strategies of the educational systems of which they are a part.

Another problem which has planning implications concerns the political and economic power distribution between social classes, political or ethnic groups within a society is the adoption of family planning concepts. Fears about differentials in fertility among these groups and the reversal of the demographic situation, when moderating population growth in one group and not in the other (majority/minority relationship), are problems which must be carefully investigated and considered before population education programmes are initiated.

Planners must also make themselves aware of socio-cultural attitudes and norms: a number of Latin American educators have noted that lack of scientific understanding of the socio-cultural elements of sex and family life and of the relationship between community values and behaviours has limited the development of population education programmes in their countries.

5.2 Human and Material Resources

In the early seventies, population education programmes in schools in a number of countries of the developing world received relatively large support from a variety of international funding agencies. Many of these programmes enjoyed resources which were not available in most other educational areas. Programmes, planned at a national level, often set up new bureaucratic structures within ministries of education - to plan and implement seminars, workshops & training programmes, to defuse the seminars idea of population education and to encourage programme support. In the absence of local professionals possessing certain types of competencies that were thought to be needed, funds were usually available for foreign advisers and consultants. The size of the funds also blocked efforts of coordination and created frustration among personnel whose programmes were less well endowed.

The lack of trained personnel for planning, for teacher training, for the development of population studies, for curriculum development and for teaching has also been a major constraint in the development of programmes. However, for programme planning and implementation, considerably more personnel with appropriate skills may be available than is thought to be the case. And the amount of time and resources needed to provide them with the learning and skills specifically related to population, though not inconsiderable, may be smaller than is often imagined when new programmes are planned. Planners are well advised to

identify these potential resources through surveys of current educational programmes and activities in areas related to population education.

One particular aspect of the newness of the field deserves special attention, namely the training of future programme leaders. Several countries have felt the need in recent years to provide certain individuals with long-term training abroad in population education or in related fields. When these individuals returned home, it was frequently found that their training was alien to local conditions and no longer completely relevant to local programme development. Greater emphasis has now, therefore, been placed on short-term training in the home country or region and on short internship to visit projects in other countries.

Shortages of both human and financial resources, while serving as constraints in some respects, can also spur planners to develop strategies which will promote co-operation and innovation within the educational setting and at the same time, bring about increased integration of population education with other programmes through a greater sharing of responsibility.

5.3 The Relative Newness of Population Education

The fact that population education programmes do not possess a long history or a great wealth of experience is sometimes seen as a restriction to their development. And it is true that there are few models upon which to build. However, there exists a large amount of experience, in planning and implementing innovation in school and out-of-school systems of education, which is relevant and which planners should review. All too often in any new educational programme, it is assumed that nothing is known about the task and that new research efforts are needed. Without denying that this problem exists, planners should phrase their questions in new areas in ways that will make it possible to use the results of existing experience in related areas. And specialists who have this related experience should be involved in the planning process.

In fact, the comparative newness of population education programmes can be an asset. Planners may develop new strategies to short-cut old difficulties. They have the opportunity to innovate without encountering as much build-up of resistance as was perhaps the case with earlier projects in similar fields.

6. POPULATION PLANNING IN DIFFERENT PROGRAMME AND POLICIES

Efforts to initiate population planning activities in order to regulate growth of population in Pakistan go as far back as the early 50s with the formation of the Family Planning Association of Pakistan (FPAP) in 1953, a non-government organization (NGO). The Association worked entirely on its own until the government, realizing the need for population planning, offered a small assistance of Rs 0.5 million to FPAP in its First Five Year Plan (1955-60). During this period, FPAP established clinics in selected cities and started providing family planning services.

An official programme of family planning was launched in 1960, when the policy-makers expressed their concern over the steadily increasing rate of population growth. During the Second Five-Year Plan (1960-65), population planning activities were officially initiated through the health sector with an allocation of Rs 15.5 million. At the end of 1964, there were 1589 family planning clinics functioning within the set up of health dispensaries, hospitals and maternal and child centers. (1) In addition, an independent Family Planning Council was constituted and a National Board of Family Planning was formed to advise the government on policy issues. The overall population policy recognized the need to change the attitudes of individuals towards small family size norms. An evaluation of the Second Plan revealed that the impact of the family planning programme was inadequate and much below expectations.

Following this, the government came forward boldly and introduced the first comprehensive and detailed national family planning scheme during the Third Five Year Plan (1965-70). An allocation of Rs 148 million was made with a target of providing family planning services to some 20 million couples in the entire country. For the execution of this programme, a total of 20,000 village 'dais' (Traditional Birth Attendants) were employed (one 'dai' for two villages), and about 1200 part time family planning doctors (6 for each tehsil) were registered and appointed for the purpose of IUD insertion and clinical sterilization.

All these efforts were intended to bring down the crude birth rate from 50 to 40 per thousand populations. Supply out-lets including private shops, pharmacies, clinics and health centers were established and supplied with all sorts of contraceptives at highly subsidized price.

In 1977, after the change in the political set up in the country, the programme met with severe criticism from the political and religious leaders, which led to the suspension of all programme activities until 1979. The shutdown of family planning activities was in line with the policy of "Islamisation" during that period which affected the functioning of the programme negatively.

The programme, during the Fifth Five Year Plan (1978-83) adopted a new multispectral approach, emphasizing linkages between health, population, nutrition, education and income in the development context. The population programme was transferred from the Ministry of Health to the Ministry of Planning and Development. Under this programme, the delivery of family planning services was one of several activities undertaken by Family Welfare Centers (FWCs). The programme, with its new name as the Population Welfare Plan, 1980-83, was restarted in the early 80s and was termed as the "New Beginning" in Pakistan's family planning programme [Robinson (1987)]. The reorganization of the programme resulted in a reduction of staff (from 16000 to 8500), whereby field motivators were relieved of their jobs.

Although an allocation of Rs 824 million was made during Fifth Plan period, (see Table 2), nothing tangible was accomplished during these years except for the

restructuring and re-organization of the programme. During the Sixth Five Year Plan (1983-88), the process of organizational changes continued. The field activities and provision of services were transferred to the provincial governments, while finance and policy-making was left with the federal government. Two years after the start of this strategy, the results of the 1984-85 Pakistan Contraceptive Prevalence Survey (PCPS) indicated some improvement in the prevalence of contraception. The results showed that CPR was about 9 percent which again fell much short of official target of 19.4 percent set for the 5th Plan (see Table 3). However, the Pakistan Demographic Surveys (PDS) of 1984-87 diminished all hopes of achieving a success in the programme through reduced fertility and population growth rate, as their estimates indicated the crude birth rate at 43.3 per thousand and the total fertility rate (TFR) at 6.9 children per women [Government of Pakistan (1988)].

By the end of 7th Five Year Plan (1993), when the family planning programme in Pakistan had become 28 years old officially and 40 years old unofficially and had cost 6.35 billion rupees during the period, the contraceptive prevalence remained below 15 percent against the target set at 23.5 percent (see Table 3). However, the programme was successful in making family planning programme widely known to the people as knowledge of contraceptive increased up to 90 percent (see Table 1).

During the 1990s, government's strong and explicit support to family planning programme gave it a turning point. The results from the Pakistan Demographic and Health Survey of 1991 gave some encouraging news of a rise in contraceptive prevalence to 14 percent, but at the same time raised concern among public and policymakers about the low impact of the programme over a period of three decades.

In later years, indications of a rising trend in contraceptive use to nearly 18 percent in 1994-95 and to about 24 percent in 1996-97 [Ministry of Population Welfare/Population Council (1995); Hakim et al. (1998)] have shown signs of a positive response to the adoption of family planning among Pakistani couples. However, the question about the low impact of the programme still remains a matter of concern as only about a fifth of women in Pakistan are using contraceptives, despite investment of billion of rupees made during the past 30 years.

6.1. Planning Population Education in Pakistan

The Government of Pakistan has recognized the importance of Population Education in motivations and persuasions of the people in the acceptance of small family norm by initiating population education activities in the middle of 1970's. With financial support from Population Welfare Division, population education messages had been systematically and specifically developed and integrated in the formal population education programme in the Curriculum Wing, through Population Education Cell.

Population Education is considered as a main complimentary effort in the overall Population Welfare Programme. It is expected to contribute towards the realization of the country's population goals by creating awareness, develop critical thinking

and responsible attitude among the student, youth and adult learners at the out-of-school programmes. Decision making abilities towards population problems faced by Pakistan is considered to be the ultimate goal of population education, which will contribute to the achievement of population's policy set by the Government. Population Education Programme in the formal education was introduced in the year 1983. Main focus of the project was on the revision and development of curriculum and materials for the secondary schools. Training was also conducted for about 10,000 teachers. The second phase (1986-88) and the third phase (1993-98) were focussed on the extension of the first phase.

6.2. Planning Population Education Project

In August 1991, Directive of effective implementation of population welfare programme was issued by Prime Minister, which stated:

- a. It is imperative the population growth is brought down within manageable limits.
- b. The education sector should play an effective role in population welfare programme and intensify its activities.

The directive provides sound rationale for the evolution of object on "Population education programme through formal school system for intensification of population welfare programs in the country, the project entitled "population education programme through formal school system" was prepared and coincided with the time frame of 8th Five Year Plan to be implemented from July, 1993. The theme and concept of the project was presented and discussed thoroughly in the 2nd Inter-Ministerial Meeting held on 9th October, 1991 and was approved in principle with the direction to negotiate it with the UNFPA for partial sponsorship. Who agreed to sponsor the project partially allocating a sum of US \$ 1,769,637 for the plan period. The Project in fact is an intensification of Population Education Programme, which was introduced during 1983. With the implementation of phased projects on population education through formal school system, the desired objectives and targets were achieved (Govt. of Pakistan, 1996). This project aimed to introduce population concepts into the curricula, orientate curriculum developers and educational administrators, and provide short training courses to a total of 20,500 school teachers in Pakistan.

Although it was a pilot project, it succeeded in triggering a change by adding new population related contents into the textbooks, transforming the opinions of senior educationists and sensitizing the school teachers. The feedback from the training courses in the field transpire that rigid views of even the highly educated people in the cities and conservatism of the rural teachers can be softened and molded through an effective training package, built on logic and hard facts. Though limited in quantitative coverage, the project has penetrated deeply into the print materials and minds of the people associated with the school system in Pakistan. The materials developed and strategies evolved under the project were the foundation for extension of population education in Pakistan on a larger scale. The directive

provides sound rationale for the involvement of object on "Population education programme through formal school system for intensification of population welfare programmes in the country, the project entitled "population education programme through formal school system" was prepared and coincided with the time frame of 8th Five Year Plan to be implemented from July, 1993.

6.3. Efforts of Curriculum Wing, Ministry of Education to Promote Population and Development Education

Pakistan is one of the most populous countries in the world. It is rich in natural resources and has great potential for progress. However, the development efforts of the government are often neutralized by the growing population. A country has to maintain a balance between its resources and population growth, if it wishes to develop and progress. The society at large, and the youth in particular, therefore, need to be made aware of the crucial relationship that exists between resources and the growing population, and how it affects the quality of life of people.

Recognizing the long-term beneficial effect such awareness is likely to play future Ministry of Education Government of Pakistan had introduced population and development Education in the school curriculum in early 80's. the vital role that this important discipline can play, in achieving socio-economic objectives, is now universally acknowledged. Many countries have, therefore, introduced it in their curricula.

The internationally accepted objectives of Population and Development Education include: creating awareness among students and the public about the composition and changes taking place in the size of population, and the public about the composition and changes taking place in the size of population, and the effect such changes can have on environment, health, housing, education and quality of life. The likely impact of population growth on social and religious values and family relation also form a part of such education. Precautions that should be taken against HIV/AIDs, the role of parents, teachers, and the community as well as gender discrimination, are other significant issues dealt within this discipline, with particular reference to youth.

Between 1983 and 1988, a few broad based messages of population education were incorporated in the Middle and Secondary School textbooks; material pertaining to the training of teachers was developed, and thousands of teachers trained. Thereafter, a project titled "Population Education in the Formal School System" was launched in 1995, and a revised version of the Population Education curriculum developed in accordance with the guidelines provided in the National Education Policy (1992-2010). This curriculum was developed bearing in mind our norms, traditions and values.

The project achieved its objectives of intervention in the curriculum, by infusing messages into the relevant textbooks and preparing training material for teachers. No study, however, was undertaken to assess the needs of the beneficiaries, before

the project was lunched. This being an obvious shortcoming, a "Need Assessment" was done through a project titled, "Population and Development Education for youth". On the basis of this project's findings, provincial reports were prepared. These reports were then discussed in detail, and consolidated for the development of curricula and textual material. This was followed by the National Meeting for Development of Curricula, conceptual Framework, and Identification of Themes for Selected Subjects at the Secondary School, Higher Secondary School and Teacher Education Levels. The experts, as well as representatives of the Provincial Education Departments including Directorates of Curriculum Research and Development AJK formed part of the team which participated in the meeting and rendered valuable advice and assistance during the deliberations.

UNFPA agreed to finance this project from the year 2001 in 10 selected districts (2 in each province and AJK- Chakwal and Muzaffargarh in Punjab, Mansehra and Kohat in Khyber Pakhtunkhaw, Noshki and Qila Saifullah in Balochistan, Thatta and Jacobabad in Sindh, Kotli and Mirpur in AJK). The main objectives of the project are:

- a) To develop awareness about different demographic concepts including human population, its size, growth, etc and its effect on the quality of life through health, food, nutrition, housing, education, employment, environment, prevention against HIV/AIDS and other fatal diseases; also gender roles and responsibilities, family and social life and to correct misconceptions about discrimination, etc.
- b) To develop and educational response for our young generation for responding to the implications of population growth through rational decision making in their further life.

Under the project, Ministry of Education (Curriculum Wing) has developed following 13 modules for training of teachers at Secondary and Higher Secondary Schools levels relating to population and development education concepts:-

1. Population Education and Population in Pakistan
2. Population Growth, National Development and Standard of Living.
3. Population Growth and Education
4. Population Growth and Health
5. Population Growth and Environment
6. Population Growth and Urban Migration
7. Population Growth and Housing
8. Growing Population and Agriculture
9. population Growth, Gender Awareness and Women Empowerment
10. Population Growth, Social and Ethical Values
11. Population Growth and Human Rights
12. Population Growth and HIV/AIDS, STIs and Drugs Prevention
13. Population Growth and Roles and Responsibilities of family, school, mosque and community in Population Education for Youth

Based on the above modules, teacher trainings were conducted, population and Development Education Concepts for inclusion in school curricula and textual materials were developed and in the new curricula for education up to Higher Secondary Schools level notified since 2006 all these concepts have been incorporated.

7. POPULATION AND DEVELOPMENT EDUCATION FOR YOUTH PROJECT FUNDED BY UNFPA

Pakistan is the 6th most populous country of the world with a total population of 176 million growing at an average rate of 1.9 percent per annum. The demographic profile of Pakistan shows that its population in 1951 was 34 million growing to the 149 million by mid 2003 which if not checked, will reach 217 million by the year 2020. Recognizing rapid population growth as a serious problem, the government designed policies and programmes to bring down the growth rate to create a balance between population size and available resources to ensure provision of better quality of life to all citizens. A review of implementation of policies in the past shows that the investment made in social sectors such as education, health, housing, water, sanitation, and infrastructure did not keep pace with the rapidly growing population. As a result, the government reconsidered its policies and decided to follow inter-sectoral population policy encouraging each relevant sector to actively participate in population related activities.

The Education Sector responded positively and, while designing National Education Policy (1998-2010) made a commitment that "Emerging key issues such as computer literacy, population and environmental education, health education, HIV / AIDS education etc., shall be revitalized and integrated in curricula." The component on population education has been made an integral part of the national Education Policy 2009 with special reference to curriculum, textual material, teacher education and training, examinations and assessment at all levels of formal and non-formal education. The government is also aware of ensuring participation of planners, administrators, policy makers, curriculum and textbook developers, teacher educators, teachers, parents, community leaders and learners.

A Project titled "Population and Development Education for Youth (2004-2008)" was signed between Government of Pakistan and UNFPA during 2004. Total cost of the Project approved by UNFPA Executive Board is US\$ 34,900,000.

The main objectives of the project are as under:

- To develop awareness about different demographic concepts including human population, its size, growth, etc and its effect on the quality of life through health, food, nutrition, housing, education, employment, environment, prevention against HIV/AIDS and other fatal diseases; also gender roles and responsibilities, family and social life and to correct misconceptions about discrimination, etc.
- To develop and educational response for our young generation for responding to the implications of population growth through rational decision making in their future life.

The total programme envisages the following 8 core messages:-

1. Population Growth and its impacts.
2. Population and Environment.
3. Population and Standard of living.
4. Health and Nutrition.
5. Gender awareness and women empowerment.
6. Human Rights
7. Education for protection from HIV/AIDS, STIS, Hepatitis and drug abuse.
8. Role and Responsibilities of Family, School, Mosque and Community in Population Education for youth.

The project has two components, one for Curriculum Wing and other for FFA Wing later renamed as Projects Wing. As per annual programme following activities have been completed from 2004-2010:-

Curriculum Wing:

Activity: 1 Finalization of draft curricula for grade 9-12.

1. Supplementary textual material for students of grades 9 to 12
2. Teachers' guides, test items and audio-visual aids.
3. Training packages.
4. Sets of orientation material for key decision makers.
5. Sets of material for use by media, personnel and other for advocacy.
6. Training of 20 Master Trainers.
7. In-services training of 200 secondary and higher secondary teachers.
8. Orientation seminar for 100 Education Administrators
9. Orientation seminar for 100 media personnel/ local leaders.
10. Trial of draft material with respective audiences/ Commence trial teaching in 25 schools and 5 T.T. institutes.
11. Evaluation of Trial phase covering assessment of teaching learning material and processes etc.
12. Workshop to finalize curricula and teaching-learning material etc.

EFA WING:

Activity: 2 Support for girls' primary schools, for promotion of girls participation and education.

1. Renovating 100 poor schools facilities (10 schools in each district)
2. Providing incentives to girl child of deprive families in catchments areas.
3. Establishing linkages between girls' primary schools and its teachers with staff of local family health Centre/clinic and LHV to provide better quality of life.

Activity: 3 Support for up-gradation of girls NPE Centre to Girls NF middle schools.

1. Upgrading of girls NEPE Centre to girls NF middle schools (10 middle schools per district)

2. Establish linkages of these girls' middle schools with other stakeholders in the community through Community Health and Education Advisory Committees.

Activity: 4 Monitoring and evaluation of enhancement of girls participation Programme

1. Monitoring /Supervision of:
 - a) Renovation of Primary and up gradation of girls non formal middle schools,
 - b) Enhancement of girls participation rate, and
 - c) Effectiveness of linkages between school teacher and LHV.

Ministry of Education (Curriculum Wing) in collaboration with Provincial Education Departments have developed curriculum for classes 9-12, textual material, teacher guides for SSC & HSSC levels, 13 modules on various themes, material for pre-services teacher education related to population education and development of youth, 24 Master Trainers have been trained at national level. 800 teachers have been trained at district level where materials have been tried out. On the basis of feed back through mid-term and final evaluation, curricula and textual material have been finalized and approved by the National Review Committee for incorporation in the textbooks by the Text Book Boards.

8. POPULATION EDUCATION PLANNING STRATEGIES AND APPROACHES

There are several approaches for planning the population education. There is a need to get the population education to be socially approved. Population education also requires qualified manpower for proper implementation of population education programmes.

8.1 Planning Strategies

Planning for population education is not significantly different from any other educational programmes. Planning at two levels, macro and micro, is generally recognized for population education programmes. An example of macro planning is that which takes place at the national level. Such a plan sets general targets and guidelines, allocates national resources to the educational sectors among others and provides a reference base for decisions on national priorities. This plan, however, is not an action plan. A macro plan has to be translated into a series of micro-action plans. These plans are the products of micro level planning. The micro approach to planning, also known as the 'environment based' approach, involves planning at the local level. In this process, the local situation (a community for which a population education programme is intended) is examined to identify problems and needs of the target clientele, set goals and objectives of the programme, mobilize resources (both human and material) and assign priorities to programme activities. Micro planning is building an educational programme 'on site'.

The majority of experts on population education agree that a combination of macro and micro approaches will be a desirable strategy for planning population education programmes. The translation of a macro plan into a series of micro-action plans requires both competent planning from the top down and a planning

process from the bottom up. However, flexibility must be observed throughout the planning and programme development processes.

The field workers must be knowledgeable and appreciative of both approaches. Moreover, because of their direct involvement in the planning of micro level plans that are specific problem and action-oriented, they must develop certain competencies and skills for planning micro-action programmes at the community level. This approach generally operates on the principle of involving local people in planning, implementation and evaluation of a programme which is intended for them. The experience has shown that the micro approach helps develop a sense of responsibility, confidence and self-reliance among the people in the community and motivates them to undertake activities as these are geared to the solution of their problems.

Having conceived the role and scope of macro and micro approaches for planning population education programmes, the next question for the consideration of programme planners is whether the programme of population education in the out-of-school sector should be designed and planned as a self-reliant, independent programme emphasizing only population education or should it be an integrated programme of economic and social development with considerable emphasis placed on population education. This problem about the nature of an out-of-school population education programme was discussed in detail in a Regional Consultative Seminar on Population Education for Out-of-School Youth and Adults. In this seminar, the participants from nine member states in Asia and nine United Nations Specialized Agencies and Non-Government Organizations unanimously recommended that out-of-school population education programmes should be integrated with other programmes of development carried out by different agencies in each country. The specific recommendations of the seminar for planning were as follows:

1. The national authorities should incorporate population education as an integral part of an overall programme for development;
2. The planning approach should be one of combining the elements of macro and micro planning, to the extent that such combination is possible. For this purpose the national authorities should endeavour to build a two-way communication system;
3. While drawing up a programme for population education, the principles of co-ordination should be kept in view so that the programme does not run counter to already existing programmes. Moreover, the coordinating authority should ensure that relevant information has been obtained from and disseminated to all the agencies /departments, government and non-government, which are in one way or another responsible for educational programmes. Provision should exist for periodical mutual consultations.

8.2 Planning Approaches

The population education programme, like other programmes concerned with the improvement of the standard of living and the general welfare of people, must be so developed as to help solve problems and meet the needs, interests and

aspirations of the individual, the family, the group and the community. The programmes should, therefore, be individual, family and community-based, if such programmes are to be meaningful.

It is also important that the field worker at the village level should understand the relationship among the individual, the family, and the groups within the community; and know how the community and the nation are affected by population problems. Field worker, therefore, must have the ability to develop a sound village programme with the people. Among the approaches that a village worker might bear in mind are briefly described on the following pages.

8.2.1 Individual approach.

In this approach, the field workers begin by contacting individuals personally. If the field workers are knowledgeable about some local leaders or some outstanding individuals in the village, they should make it a point to visit them in their home or on the farm/factory. During the first visit, the field workers should try to establish friendship and credibility. Later, the field workers may provide information and advice, if this is sought by the target clientele. Individual projects can then be started based on their needs and interests. Such projects should be simple to ensure success, i.e. result in improvements in their lives.

8.2.2 Family approach

This approach involves all members of the family. The field workers should be aware of the influence that members have on each other, particularly in the decision-making pattern of the family. For example, if decision-making in the family is shared by husband and wife in matters pertaining to home and family and even farm operations, the field workers should address their educational programmes to both husband and wife. If the field workers entry point for population education for the housewife is food and nutrition, a farm activity or some other interest activity could be the entry point for the teaching-learning activities designed for the husband. The young members of the family should also be invited in population education activities through work or play activities. These could be starting points for initiating changes for improving family and village life.

8.2.3 The special interest or group approach

Women's associations, farmers and youth groups or associations, and workers associations provide opportunities for group discussion on topics which matter to them and their community. Such groups can even be informal. As the field workers listen to their conversations and discussions, they would be able to identify common problems and the needs that the people express. Much can be accomplished if village people discuss, plan, and act together. The field workers role is to plant ideas, encourage people, analyze the situation, assist in planning and ensure action resulting in satisfaction among the people with whom he works.

8.2.4 The integrated or village approach

At the village level, the field workers should recognize the fact that they are part of a team working together cooperatively to accomplish the goals of out-of-school population education programme. Therefore, it is important that they work closely with representatives of other development programmes of both government and private agencies in developing an integrated programme aimed at meeting the needs of all the population in the village. A common understanding of the goals to be attained must be established for everyone on the team. It is necessary to lay down a complete plan of the educational programme that is intended for the village.

The characteristics of the work situation of the field workers determine what approach or approaches they should apply in a particular area when planning with the people.

Whatever the approach or combination of approaches may be followed by the field worker, the basic guidelines and the process for evolving effective programmes would remain the same.

SELF-ASSESSMENT TEST III

- | | | |
|----|---|--|
| 1. | Here are some statements. Tick the letter 'T' if the statement is true. If the statement is False, tick 'F' | |
| T | F | The newness of population education is a serious problem |
| T | F | There is no need for training the future programme leaders of population education |
| T | F | Population education programme is concerned with the improvement of the standard of living |
| T | F | Associations can be categorized as special interest or group approach |
| T | F | Planning for population education is significantly different from other educational programmes |
| 2. | Name the four planning approaches applicable to population education programmes- | |
| | i. _____ | ii. _____ |
| 3. | What are the problems which hinder the development of population education in a society? | |

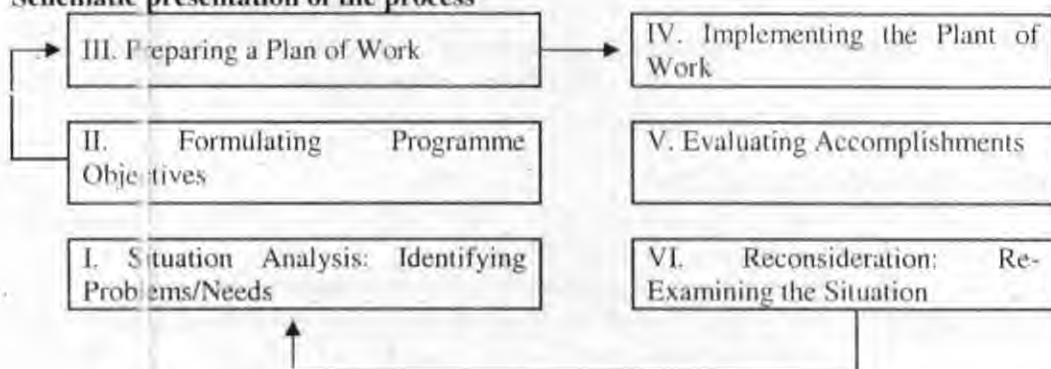
9. PROGRAMME DEVELOPMENT FOR POPULATION EDUCATION

Any systematic attempt to promote population education starts with the preparation of a plan which shows the focus or emphasis, priority concerns and scheme of the educational programme to be pursued. A good programme does not just happen. It is to be developed. Designing a programme for population education is not an easy job, it is a real challenge to every body involved in it in one way or the other. Analyzing situations, synthesizing facts, making sound decisions as to what action to take in the educational process require certain

skills and techniques on the part of the planners. Trial and error can be frustrating and costly. But systematic planning and programme development invariably lead to the discovery of better courses of actions, the determination of relevant specific operational objectives, and the solution to problems likely to be faced by the target clientele.

Programme development is a continuing and repeating cycle of steps or procedures that frequently overlap with each other. There is no short cut to the process. Each step has to be accomplished because each one affects the next. There are no fast rules that can be followed to accomplish each step, as details must be worked out to fit a given situation. The experiences of the field workers and the target clientele as they work together are among the basic factors that will determine the phasing of the programme development process. A brief description of the major steps and the procedural guide-lines are presented below:

Schematic presentation of the process



The diagram indicates evaluation as one of the six steps. In fact, it is a built-in process with the assumption that each step is being evaluated and the results of this evaluation provide a basis for decision-making and planning.

Step I. Situation analysis

Sound programme development starts with the analysis of the actual situation. In analyzing the situation, the field worker should use facts gathered on the situation through a combination of various means such as review of existing documents, meetings with local leaders and field workers and specialists. Informal consultation with groups in the community and organized surveys to identify significant needs and interests of the target clientele and socio-demographic characteristics of the community.

It is recognized that a need implies a gap between what is and what ought to be. By studying the situation (the community/village which is the target of the programme), "what is" can be determined. Examples of the kinds of information that a programme planner may need to analyze 'what is' are:

1. Socio-cultural and religious characteristics, e.g. (a) the people involved and their religious affiliations, number, age, educational attainment, housing, nutrition,

health, sanitation and demographic characteristics, (b) organizations in the area - social, religious, cultural, economic, and political.

2. Physical conditions, e.g. (a) land use, soil type, major crops, area planted, yield, livestock, machinery, equipment, etc.
3. Economic conditions, e.g. (a) land tenure system, labour supply and cost, prices of agriculture products, transportation, markets, etc., (b) existing development programmes including those on population related matters, etc.
4. Facilities and assistance available in the community.
5. Other pertinent background information on the area involved depending on the kind of programmes being planned.

Once the problems and needs have been identified in the local situation they must be prioritized, taking into consideration the problems that affect the great majority of the target clientele and which have to be attended to within a given time. An effective programme cannot bring all things to all people at the same time. There must be a system of priority.

Step II. Formulating programme objectives

As in every educational activity, the objectives of population education are aimed at bringing change in what people know, what they feel and think and what they actually do. Because objectives express the ends towards which the educational efforts are directed, a great deal of thought must be put into their formulation. Objectives can be categorized as sound if they are:

1. Dynamic and likely to promote action.
2. Socially desirable
3. Achievable in terms of the maturity of the group and available resources.
4. Developmental, leading to constantly higher levels of achievement.
5. Definable in terms of behavioural changes in people, changes in knowledge, skills and attitudes.
6. Evaluative, i.e., they permit gathering of evidence of actual progress of the people.
7. Specific and clearly worded.

In a nutshell an educational objective can be said to be sound only if its statement, besides other things, provides information about the following three major components:

1. The audience to be reached.
2. The contents or subject matter to be covered.
3. The behavioural changes or what changes in knowledge, attitudes, skills, awareness, interest, understandings, abilities that need to take place in the people concerned.

Objectives may be classified as long-range, intermediate and immediate (measures to achieve the long-range objectives). In between the long-range and immediate objectives are intermediate ones. For example, the long-range objective of population

education programme is "to improve the quality of life of the people". Intermediate objective may be expressed in terms of what can be done to improve the physical and social well-being of the family. Example: "To enable mothers to develop awareness and understanding of the importance of child-care for the improvement of quality of life". Within this context, an immediate objective would be, among others as follows: "As a result of the teaching-learning activity, the mother should be able to explain the effects of a large family on food and nutritional requirements of the family members".

Step III. Preparing a plan of work

In a programme development process, statements of situation highlighting significant needs, and problems of the people and the long-range objectives to be achieved within a specific period of time are generally followed by a definite plan of work. A plan of work is also called action plan. It is so because a plan of work is a statement of the activities to be implemented. A well thought out plan of work includes the following information:

- | | |
|---|-------------------------|
| a) Who is to be served | b) What is to be done |
| c) Who is to do it | d) How it is to be done |
| e) When it is to be done | f) Where it is to be |
| g) How results are going to be measured | |

Step IV. Implementing the plan of work

This is the stage where a plan of work mutually developed with a clear understanding of the procedures and the roles to be performed by all concerned individuals and agencies has to be put into operation. Experiences has shown that one of the preliminary steps to be taken in the implementation of population education programme like other education programmes is the mobilization of planned human and material resources. A clear understanding and mutual trust in the capabilities and potentials of each participating agency in the implementation of the planned activities are extremely important to ensure smooth implementation of the population education programme.

Step V. Evaluating the accomplishments

Population education, like any other educational programme, is expected contribute to the social and economic development of the target clientele. But how can population educators tell whether or not the objectives of a population education programme have been attained? They look for indicators or evidences that a change in the 'right' direction has taken place in the target clientele as a result of the teaching-learning processes. Three evidences of success are expressed in terms of observable behaviour or results of behaviour.

In general terms, the following are some examples of social indicators of expected outcomes that can be subsumes under the four broad headings. Other categories are possible. The list is by no means exhaustive:

1. Physical improvement

- Adequate food (kind and quality)
- Improved health and nutrition of family members

- Adequate housing
- Clean home surroundings.

2. Social Development

- Improvement in social status of the family
- Development of local leadership to assume leadership roles in their respective communities to provide continuity of the programme
- Family and child welfare
- Effect of recommended practices on the system of value, code of conduct that govern individual and group behaviour, kinship or religious institutions
- Positive attitude towards the programme

3. Economic development

- Increase in income
- adoption rate of the income-generating practices being recommended.
- Participation or increased participation of target clientele in gainful employment

4. Integrative

- Extent to which local initiative has been generated and involved in the planning, implementation, resource mobilization and evaluation of the programme.
- Extent to which agencies worked together cooperatively and coordinatively.

Evidences of changes are not readily observable in human beings. However, evidence of success in attaining outcomes is indicated by what a person does, not merely by what he says. Such questions can be asked: Have the target clientele (farmers, homemakers, youth, etc.) done anything as a result of the teaching-learning activity? Has there been a change in the status or way of life since the teaching-learning activities began?

Determination of the indicators of educational experiences is a vital step in planning for and defining the objectives of the teaching plan. The analysis of the teaching plan in terms of what is intended to be done (specific objectives); what is intended to be taught (subject matter); how the educational work is to be done (teaching methods or learning experience); who are to be reached target clientele; and what is expected of the target clientele to be able to do (behavioural changes expected or behavioural outcomes) enable the field worker to anticipate in desired behavioural changes. This is also a preliminary step in the evaluation process.

Step VI. Reconsideration -re-examining the situation

Based on the results of evaluation in terms of accomplishment of the programme objectives, emerging new problems, changing needs and aspirations and availability of resources, the entire population education programme may need to be reviewed and replanned. The process to be followed and the people to be involved for collecting, analyzing and interpreting the data for the assessment of needs and measurement of

accomplishments will be the same as described under Step I (Situation analysis) to Step V (Evaluating results).

SELF-ASSESSMENT TEST IV

1. Here are some statements. Tick the letter 'T' if the statement is true. If the statement is false, tick 'F'.		
T	F	Any attempt to promote population education starts with the preparation of a plan
T	F	There is no need of prioritizing the problems in the process of situation analysis
T	F	Objectives are aimed at bringing change in what people know, what they feel and think and what they actually do
T	F	Population education is expected to contribute to the social and economic development of the target clientele
T	F	All education springs from the image of the past
2. Write six step in the population education programme development:		
(i)	(ii)	_____
(iii)	(iv)	_____
(v)	(vi)	_____
3. Why situation analysis is so necessary in the development of population education programmes?		

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KEY TO SELF-ASSESSMENT TESTS

TEST-I					
1.	F	T	T	F	T
TEST-II					
1.	F	T	F	T	T
2.	Please	see the text			
3.	Please	see the text			
TEST-III					
1.	T	F	T	T	F
2.	Please	see the text			
3.	Please	see the text			
TEST-IV					
1.	T	F	T	T	F
2.	Please	see the text			
3.	Please	see the text			

UNIT 2

MANAGEMENT OF POPULATION EDUCATION

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INTRODUCTION

Management as a process deals with the achieving of objectives set for an organization. It is well said that every one of us is a manager. Management is practiced in almost all aspects of human endeavor: daily routines of a housewife, running of educational institutions, business, industry, government offices, etc.

The systematic study of management as a science emerged in the first half of the 20th century. The Industrial Revolution of the 17th century was responsible for the emergence of complex organizations which necessitated the scientific study of effectiveness and productivity. Most of the concepts and principles thus developed were geared to maximize the performance of the member of these organizations. The overall function of the manager is thus to see that desired results are obtained. He must ensure that organizational objectives are reached by planning, organizing, directing and controlling the activities of organizational members.

In this unit, we shall study how projects/programmes/organizations are managed and how their managers set and achieve their goals or objectives.

OBJECTIVES

After studying this unit the students are expected to be able to:-

1. Understand and explain the concept of management, its nature, importance and functions.
2. Discuss and apply the management concepts in the field of population education.
3. Comprehend and discuss the strategies of coordinating managing and monitoring the population education projects.
4. Critically review and explain the management problems of development and techniques to handle them.
5. Understand and explain the administrative strategies required to be used in the population education projects in Formal and Non-Formal Sectors.

1. WHAT IS MANAGEMENT

The word Management has a variety of meanings. Some of the theorists of management define it as an art and the other contend that it is a science. Management is sometimes defined as "a distinct process consisting of activities of planning, organizing, actuating, and controlling". Reformed to determine and accomplish stated objectives by the use of human beings and other sources. According to another definition "Management is the art of getting things done through other people". Managers achieve the project/programmes objectives by arranging for others to do things, not by performing all the tasks by themselves. That is, the managers do not do the same things as other employees - at least not regularly.

The manager's tasks include making good use of the enterprise's human resources. Thus, managers are always busy with the development of skills, knowledge and the potential of employees.

The other managerial tasks are those designed to make the most effective use of the enterprises financial, material, and indeational resources. These tasks include planning and decision making, building and developing the organization, and creating and monitoring control systems.

1.1 Art versus Science

Management encompasses both science and art. In designing and constructing plans and products, management must draw, if befitting concepts and techniques from technology, physical science and behavioural sciences. Nonetheless, management is not all science. Although we often come across "Scientific management" or "management science", in handling people and managing organizations, intuition and subjective judgment can also play important role. The science portion of management is expanding, more and more decisions can be analysed and programmed according to qualitative techniques. But although the artistic side of management may be declining in its proportion of the whole process, it will remain a central and critical portion of the job of a manager. It may be reiterated that knowledge (science) without skill (art) is useless, or dangerous, and, skill (art) without knowledge (Science) means stagnancy and inability to pass on learning.

Like the physician, the manager is a practitioner. As the former benefits from basic sciences of Chemistry, Biology and Physiology similarly a manager draws on the sciences of Mathematics, Psychology and Sociology. Like the doctor, the manager does not find all his answers in science. They do not tell him everything he needs to know and he cannot wait until they do so. He must act now. He must, therefore, go beyond what is known with certainty to what is only hazily perceived. Every practitioner draws on science and then makes an act of faith by leaping into the unknown, not blindly and incautiously, but leaping nonetheless.

1.2 The Importance of Management

For enterprises to survive, they must achieve their objectives. All enterprises are responsible to certain groups, such as stockholders for their survival. The manager is the link to these groups. The manager guides the enterprise, especially in times of trouble. Some writers feel that the management is unnecessary -that the employees themselves can do the work of management. But the historians and social scientists have yet to find an enterprise that survived very long without developing an hierarchy of management.

Some argue that affective and efficient management is the key difference between the success and failure of an enterprise. Some securities analysts attribute major differences in stock prices to the skills of managers. Joseph Schumpeter referred to management and entrepreneurs as the "engine of growth". According to Peter Drucher, management is the life-giving organ of the enterprise's body. To him, management provides the critical difference between success and failure of a task when it performs its four key tasks:

- i) achieving economic performance
- ii) creating productive work
- iii) managing the social impact and responsibilities of a business and
- iv) managing the time dimension.

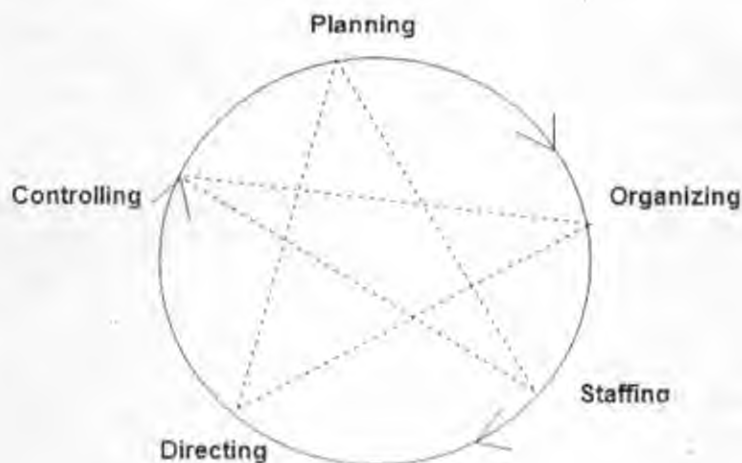
Jacques Servan and Schreiber believe that American multinational corporations have overpowered European business because of the superior skills of American management. Without managers, it is difficult to get managerial tasks performed effectively. Because management contributes to the success of an enterprise in a crucial and important way.

1.3 Functions of Management

One very important contribution of administrative theorists is the study of management as a set of functions. Fayol an early advocate of this approach said that the best way to understand an organization is to study its administrative apparatus - its management. He recognized planning, organizing, training, commanding and coordinating as important functions of administration. The management process has universal application. It represents the common fabrics of managers and expedites the study of management.

In 1936, Gulick coined POSDCORB as an acronym to describe his list of important management functions. These letters stand for Planning, Organizing, Staff, Directing, Coordinating, Reporting and Budgeting. Some other experts have new lists organized around the management functions as their idea of the definition of administration or management. One can select whichever list he prefers, but regardless of his choice of function it is clear that the study of organizations through an analysis of management function is important.

The overall responsibility for decision making process encompasses the following managerial functions:



- i) **Planning:**
Planning is a fundamental and necessary function of management. The process of establishing organization goals and a strategy for their accomplishment is known as the planning function. It is concerned with the immediate and/or long range activities level. Middle and operational management planning stems from the goals (i.e. the plan) set by the top management.
- ii) **Organizing**
Once the goals and strategies have been formulated, organization makes things happen as planned. This is an operational function and is concerned with the coordination effort of the entire organization.
- iii) **Staffing**
It is the function of manning the organization structure and keeping it manned. Staffing has assumed greater importance in the recent years due to advancement of technology, increase in size of business, complexity of human behavior etc. The main purpose of staffing is to put right man on right job i.e. square pegs in square holes and round pegs in round holes. According to Kootz & O'Donell, "Managerial function of staffing involves manning the organization structure through proper and effective selection; appraisal & development of personnel to fill the roles designed on the structure".
- iii) **Directing**
This is the motivational function. An organized effort requires complete cooperation. And in directing operations management seeks to obtain a high level of production through motivation and proper guidance of the workers.
- iv) **Controlling**
The control function monitors the achievement of goals and compares actual results with those projected in planning as well actual performance in the past. It is directly related to the plans and performance standards established by other managerial functions.

1.4 Management Practices

Several significant management practices are instinctively used when applying project management methods. We just require a modest understanding of their applications. A brief description of each of these principles is as under:

- **Network analysis** (also called graphic analysis) shows the plan of action through the use of a graphic diagram (used in project planning for preparing the planning diagram).
- **Management by objectives** is a technique that defines objectives and uses a disciplined method to measure performance against those objectives (used in project planning and project controlling).
- **Management by exception** is a technique that signals the specific problems requiring management attention. Studies indicate that management should be involved with no more than 20 percent of the total project at any one time (used extensively in project control).

2. MANAGEMENT AND POPULATION EDUCATION PROGRAMMES

In the area of population projects, a sound preparation for management includes:-

1. A systematic understanding of population dynamics and fertility behaviour demographic characteristics and the efficacy of various approaches and methods for manipulating these phenomena.
2. A well-rounded knowledge of various approaches and techniques of management related to population education and proficiency in the use to handle population problems. This knowledge and proficiency is not worth much if it is not combined with an ability to match the management approach to the needs of the programme or the organization.
3. Development of culturally appropriate interpersonal, organizational, and psychologically effective behaviour and skills. These include such matters as manners and conduct for relating with peers, superiors, and subordinates; inter organizational protocols; bargaining and negotiating skills; mode of expressing authority and exercise of power, distribution of reinforces; development of loyalty; encouragement of creativity and similar other matters.
4. A systematic understanding of the behavioral characteristics as well as functionality of various managerial role models, (e.g. entrepreneurial manager, maintenance manager, change agent, task oriented manager, employee oriented manager, pyramid climber), and one's own personal inclination.

Population education is an educational response to various aspects of demographic problems social, cultural, economic and environmental. It helps learners to understand interrelationships between population dynamics, environment and sustainable development with the purpose of promoting rational attitudes and behaviors for improving the quality of life at the family, community, and national level. Population education is an interdisciplinary programme. It is a life long process of learning, training and action.

3. POPULATION EDUCATION PROJECTS AND PROGRAMMES

The quality of management is a significant factor in the performance/ success of any programme. In the field of population education it is more so. Many projects/programmes around the world got success or failure due to the quality of their management. Since 1970, population education has been introduced in many countries of the third world. The planning, development and implementation of population education programmes took place in the absence of any previous models which could be used as examples. Also, the management and the personnel working in population education had limited experience in running and managing population education programmes.

This is why the concerned government authorities and funding agencies and executing bodies attribute the failures of the projects to poor management.

It has been observed that most of the programme managers have a vague concept of management. This is partly because many project managers are expert in their respective areas of social science, e.g., social sciences and they have varied formal training in the science and the art of management.

Reviews of population education programmes have further revealed that many population education programmes manager were not achieving intended goals and objectivities due to the failure to implement required activities properly.

4. POPULATION EDUCATION PROGRAMMES AND PROJECTS IN PAKISTAN

The Government of Pakistan has recognized the importance of Population Education in motivations and persuasions of the people in the acceptance of small family norm by initiating population education activities in the middle of 1970's. With financial support from Population Welfare Division, population education messages had been systematically and specifically developed and integrated in the formal population education programme in the Curriculum Wing, through Population Education Cell. Decision making abilities towards population problems faced by Pakistan is considered to be the ultimate goal of population education, which will contribute to the achievement of population's policy set by the Government.

Population Education Programme in the formal education was introduced in the year 1983. Main focus of the project was on the revision and development of curriculum and materials for the secondary schools. Training was also conducted for about 10,000 teachers. The second phase (1986-88) and the third phase (1993-98) were focused on the extension of the first phase. The Ministry of Education conducted an evaluation of these phases. This included sections on attitudes of teachers and students to population issues. The Government of Pakistan considered there paid population growth rate as one of the serious problems in the country. The National education Policy 1998-2010 clearly indicates the commitment of the GOP to include the latest and emerging trends in education. Political commitment for population education in the public school system was strongly indorsed in August, 1991, when the Prime Minister issued a directive for the intensification of population activities in the country through a coordinated multiple approach.

In August 1991, Directive of effective implementation of population welfare programme was issued by Prime Minister, which stated:

- c. It is imperative the population growth is brought down with in manageable limits.
- d. The education sector should play an effective role in population welfare programme and intensify its activities.

The directive provides sound rationale for the evolvment of object on "Population education programme through formal school system for intensification of population welfare programs in the country, the project entitled "population education programme through formal school-system" was prepared and coincided with the time frame of 8th Five Year Plan to be implemented from July, 1993.

The theme and concept of the project was presented and discussed thoroughly in the 2nd Inter Ministerial Meeting held on 9th October, 1991 and was approved in principle with the direction to negotiate it with the UNFPA for partial sponsorship. Who agreed to sponsor the project partially allocating a sum of US \$ 1,769,637 for the plan period.

The Project in fact is an intensification of Population Education Programme, which was introduced during 1983. With the implementation of phased projects on population education through formal school system, the desired objectives and targets were achieved (Govt. of Pakistan, 1996). This project aimed to introduce population concepts into the curricula, orientate curriculum developers and educational administrators, and provide short training courses to a total of 20,500 school teachers in Pakistan.

Although it was a pilot project, it succeeded in triggering a change by adding new population related contents into the textbooks, transforming the opinions of senior educationists and sensitizing the school teachers. The feedback from the training courses in the field transpire that rigid views of even the highly educated people in the cities and conservatism of the rural teachers can be softened and molded through an effective training package, built on logic and hard facts.

Though limited in quantitative coverage, the project has penetrated deeply into the print materials and minds of the people associated with the school system in Pakistan. The materials developed and strategies evolved under the project were the foundation for extension of population education in Pakistan on a larger scale. The directive provides sound rationale for the evolvement of object on "Population education programme through formal school system for intensification of population welfare programmes in the country, the project entitled "population education programme through formal school system" was prepared and coincided with the time frame of 8th Five Year Plan to be implemented from July, 1993. The UNFPA provided 80% of the total project budget whereas GOP provided 20%. The curriculum wing, Minister of Education, Government of Pakistan implemented this project with the assistance of UNESCO and UNFPA. A Project national advisory committee (NAC) was established to provide policy guidelines, assess progress and take steps to facilitate the effective functioning of the project. At the provincial level, population education centers (PECs) were established in the bureau of the curriculum Development (BCD) staffed to carry out curriculum development, and training of expert trainers and teachers. Five main message of population education were logically incorporated into the textbooks of Pakistan studies, and languages at primary, middle and secondary levels. All the provinces have successfully incorporated these messages into their textbooks of primary, middle and secondary levels. The following core areas provided the base for population education curriculum

1. Demography
2. Family and social life
3. Environment and ecological system
4. Health and nutrition
5. Gender roles and responsibilities

5. ACHIEVEMENTS OF THE PROJECT

The latest concepts and issues have been integrated into the text books of primary, middle and secondary levels. Moreover, a multi media package comprising teacher guides, self learning modules and charts have been produced and provided to teachers involved in the training course. A video taped lesson and photo slides have also been effectively utilized during the

training course. The results of the project have been encouraging in bring attitudinal change in teachers and other participants regarding the issues of the population growth rate. The project has impact on the general masses in the in different ways. The Project has provided the lead trainers and trainee teachers the data on population at national and international levels. This has introduced theories and trends of population change. Under this project concept of population has been incorporated in the curricula of languages, sciences and Pakistan studies at primary middle and secondary level. It has developed a relationship among the population education resources and the quality of life. It has created awareness about the gender discrimination and the effective role of women in the development of Pakistan. This project has brought attitudinal changes in every individual towards the population growth rate and its impact on overall development of the country. It has changed the attitude and opinion off the people about quality of life and basic human rights. It has enabled the people to softened the rigidity about her role and responsibilities of women.

5.1 Management Problems and Issues

A number of project review and evaluation have shown that many population education programmes are not realizing intended goals and objectives because of their failure to implement required activities properly. Mainly, it has been observed that the root cause of these problems is poor management.

The following management problems relating, to population education have been identified as the most crucial with regard to the successful implementation of population education programme:-

1. In some Asian countries, programmes in population education are lagging behind in the realization of project objectives partly because the organizational structure does not correspond with the programme related activities. The management units of these programme usually contains a very small number of personnel and must rely on the various other units of the ministry to implement its activities. Some of the units are even run by part-time personnel and they are not given sufficient authority influence and budget to run an efficient population education programme.
2. Project reviews have also revealed that even after the approval of external funding support of the much needed necessary facilities, equipment and staff are not always made available. As a result, there is delay in the implementation of project activities. One of the reasons for this is the lack of experience by population education staff in the selection and procurement of equipment from abroad.
3. Many of the people appointed as population education programme/ project directors are often times specialists in certain disciplines or experts in certain components of programme operation. Although they may have some experience in planning and management in general, but very often they lack formal training in scientific planning and management of population education. This is also accompanied by a quick replacement of both project directors and personnel for un-necessary persons. Moreover, some countries though have delicated areas of responsibilities or programme components

such as planning curriculum development, training, research and evaluation, and documentation, there is problem of providing the staff with the necessary expertise and skills.

4. There exists a proliferation of agencies or ministries which appear to compete with each other as coordinating bodies for population education programmes. As a result, there is over-lapping and confusion with regard to the activities of these programmes.
5. Though national authorities of Asian countries are generally committed to their population education programme, they have limited resources to institutionalize them. They find it difficult to match or develop equations between policy statement and operational level demands because of resource constraints, consequently, population education programmes tend to suffer in these cases where re-allocation of budgetary provisions become necessary.
6. Another problem relating to the management of population education is the inputs to the programme by personnel from Universities and other similar institutions. Very often, these personnel are experts in the areas of their own specialization but are unable to meet the demands of population education projects.
7. There is a time lag between the availability of population data and its dissemination among the project/programme personnel and to the clients.
8. Management of external inputs, including technical assistance, training, equipment and funds is further complicating the problem. Besides logistic problems the techno-social know-how of the consultations which is required for the job has often been found to be either involvement or lower than their local counterparts.

The issues of management may be divided into two broad groups:-

- i) Issues related to the definition and description of the management of the programme, and
- ii) Issues pertaining to strategies for achieving improved management.

The modern techniques of managements are largely responsible for bringing respectability to the field of management. But adoption of these techniques is not sufficient for effective management. A sound preparation for management includes the following elements:-

Systematic understanding of issues, concerns, and problems which are to be addressed by the programme. For the manager of a population programme, it means a systematic understanding of population dynamics and fertility behaviour as well as the efficacy of various approaches and methods for manipulating these phenomena.

A well-rounded knowledge of various approaches and techniques of managements, and proficiency in the use of several of these. This knowledge and proficiency is not worth very much if it is not combined with an ability to match the management approach and techniques to the needs of the organization. This is the notion of Appropriate Technology and this concept is more applicable to the field of management than anywhere else. This is so because organizations are social, not mechanical arguments; and therefore, the working of each organization is heavily influenced by the larger social, economic, politics, and technological

forces in the immediate environment of the organization/ and by the goals, history, size and resources of the organization. Any management approach or technique which is not responsive to these variables is likely to be dysfunctional.

The understanding of the behavioural characteristics as well as functionality of various managerial role models and one's own personal inclination. While the first part of this learning is essentially cognitive, the second part requires insight into one's personality, self-image, and value system. In this comprehensive agenda for teaching of modern techniques management must be given its proper place but this emphasis must not be at the cost of other essential area of management development.

1. Characteristics of Population Programmes/Organizations

In order for the organizations /programmes to achieve their goals, the following characteristics are essential:-

All organizations should be open systems, that is, they should constantly interact with their environment. Since such interaction is critical for the survival and growth of an organization, an absolutely essential managerial task involves developing, maintaining, and enhancing the environmental support to the organization.

Organizations are social systems with purpose, that is, organizations brought into being to achieve certain goals and purposes. However, these goals and purposes are neither predestined nor fixed: they evolve and are revised by the parties behaving an interest in the organization. In the population field, these parties include the government of the country, social and religious organizations, professional bodies, research and training organizations, employees and trade unions, and past and potential consumers of population/family planning services. Each of these interest-groups may not only desire different things from the organizations, but may also assert its authority and power to impose its own will on the organization. The resultant power struggle often consumes a great deal of organizational energy which could otherwise be used for the performance of some other activity. But difference and conflicts among the organizational interest groups are not always dysfunctional; in fact, within the bounds of reasons and decency, they serve a useful purpose by forcing re-examination of assumptions, information, and alternatives. A second important management task, therefore, is to ensure that interest-groups interactions remain creative and productive and do not degenerate into power struggles.

To reflect and accommodate the interest and concerns of multiple interest groups, organizations' tend to adopt multiple goals. Often these goals are not congruent with each other; at times they may even be contradictory. Since, it is usually not possible to achieve all goals in equal degrees, a third important managerial task is that of assigning operational priority to these goals and doing so without alienating any interest group.

Organizations, like-organisms, go through various stages of growth. At each stage, needs are somewhat different. To recognize and respond to these changing needs is another important managerial task.

No organization is totally autonomous. All organizations are subject to a certain degree of interdependency. These interdependencies may be vertical, lateral, or both. These interdependencies serve both as constraints as well as potentials for help and resistance. Recognition of these interdependencies and utilization of these linkages to help achieve the goals of one's organization is yet another important managerial task.

Organizations differ in their attractiveness and this characteristic has a large impact on external relations as well as on the internal workings of the organization. Developing an appropriate degree and type of organizational attractiveness with the help of appropriate symbols and behaviour is another important managerial task.

2. Experiences and Lessons Learned From the Population Education Projects

Analysis of population education programmes has shown that most of the projects have the following elements:-

- a) The initiation of the population education programmes;
- b) Curriculum and material development,
- c) In-service training of teacher,
- d) Pre-service training of teachers,
- e) Programme management,
- i) Monitoring population education programme progress and improving their quality, and
- g) Integration with the school programme.

Within each of these seven elements, countries have made decisions on a series of basic issues. These decisions vary from country to country, depending upon ideological, social, cultural and political climate of each country. To start the programme, for example, countries decide in which grade/grades and subject(s) the curriculum be developed.

Similarly decisions on each of the seven elements have been made by the countries concerned, keeping in view their particular circumstances and needs. In the case of element curriculum and material development, three approaches to curriculum development have been adopted, namely:-

- i) Separate lesson approach;
- ii) Infusion approach; and
- iii) Separate subject approach.

Each country has adopted its own approach.

3. Coordination Strategies of Population Education Programmes

In order to strengthen and coordinate the population education programmes, and to develop linkages among and between the formal and non-formal education programmes, following major areas have been identified.

1. Formal Education Programmes

In the formal education programme these problems/ strategies include:-

- a) Interest and commitment of decision-makers;
- b) Degree of coherence and the continuity of population education concepts at different levels of school education;

- c) Coordination between the population education programme of the schools and pre-services teacher-training institutions;
- d) Gap between in-service training and teaching;
- e) Coordination at different levels within the project;
- f) Variation/dichotomy between different types of schools; and
- g) Promotion of research and utilization of research findings.

4. Non formal Population Education Programmes

- a) Inter-sectoral policies and objectives for the promotion of population education;
- b) Promotion of interest in and commitment to population education programmes among decision-makers and key personnel;
- c) Roles and functions of participating and coordinating agencies;
- d) Programme coordination vis-a-vis programme implementation;
- e) Overlapping of services and wastage of resources;
- f) Mechanism to ensure wider participation for developing need based inter-sectoral programmes on population education.
- g) Coordination mechanisms for resource and information sharing; and
- h) Inconsistency of population education messages.

5. Non formal and Formal Population Education Programmes

In both the formal and non-formal population education programmes, the following coordination strategies are proposed:-

- i) Clear policy statements;
- ii) Interest in and commitment to population education policy programmes;
- iii) Coordination at different levels-nation to local;
- iv) Competition for financial resources;
- v) Complementarily in content and approach;
- vi) Exchange of information and material.

SELF ASSESSMENT QUESTIONS-I

In the following statements, encircle the letter "T" if the statement is true, and "F" if it is false/wrong.

i) A manager implements and- controls programmes	T	F
ii) The most important function of management is controlling.	T	F
iii) Established organizations set new goals every year.	T	F
iv) Individuals should be held responsible only for those activities over which they exercise authority.	T	F
v) Management is both a Science and an Art.	T	F
vi) A manager has to perform most of the functions himself.	T	F
vii) Good management is the key difference between the success and failure of programme	T	F

KEY - SELF-ASSESSMENT QUESTIONS-I

(i)	T	(ii)	F	(iii)	F
(iv)	T	(v)	T	(vi)	F
(vii)	T				

SELF-ASSESSMENT QUESTIONS-II

i)	Some of the programmes in population education lag behind in the attainment of their objectives because of structural weakness of the Project organization	T	F
ii)	The success of population education programmes is affected due to part time managerial staff.	T	F
iii)	One reason for delay in the implementation of approved project is the lack of experience of the project staff.	T	F
iv)	The only reason for management problems in population education projects is the lack of the project staff.	T	F
v)	The management problems arise due to the lack of agencies or ministries to work as coordinating bodies.	T	F
vi)	One of the management problems is the lack of dissemination facilities for population data.	T	F
vii)	The technical level of consultants vis a vis the local staff does not pose any problems of management.	T	F

KEY - SELF -ASSESSMENT QUESTIONS-II

i)	T	(ii)	T	(iii)	T		
(iv)	F	(v)	F	(vi)	T	(vii)	F

SELF-ASSESSMENT QUESTIONS-III

Q.1	Define Management. Is management an Art or a Science? Give arguments in support of your answer.
Q.2	What are the tasks performed by a manager. List various tasks identified by scholars of the field and select the one relevant to your own organization.
Q.3	Discuss importance of management in population education programmes.
Q.4	What are key characteristics of management? Give the functions of management.
Q.5	Describe management problems faced by population education programmes.
Q.6	Discuss some of the common elements of population education projects in the Asian Region.
Q.7	How can coordination be achieved in population education programmes through formal and non-formal systems?
Q.8	Describe issues and problems faced by most of the population education projects.

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UNIT 3

TRAINING OF PERSONNEL

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INTRODUCTION

Training plays a very important role, in doing any task. Although people learn by trial and error and finally reach closer to the right path but appropriate training saves time and resources, enhances chances of success and increases quality of output. Imparting population education and handling activities in this area require specific theoretical and practical training. Teachers, workers, managers, administrators, planners in educating need intensive training and there can hardly be contradicting opinions in this connection. In this unit you will study the need, importance, methods and approaches to, training programmes. Evaluating training programmes has also been included in the end which would certainly be useful. The whole material has been written with an ultimate aim of development, the required understanding skill and attitude to deal with population education activities.

OBJECTIVES

After studying this unit, you should be able to:

1. Appreciate the need for training in the area of population education.
2. Understand the concept of inquiry approach and its use in population education.
3. Describe the role of a teacher in the teaching of inquiry approach to the learner.
4. Explain the meaning, nature and purpose of values.
5. Realize the importance of value clarification as a teaching method for population education.
6. Comprehend the nature of various kinds of training programmes related to population education.
7. Acquire basic knowledge concerning the organization of training programmes for population education.
8. Understand the role of evaluation in population education programmes.

1. NEED FOR TRAINING IN POPULATION EDUCATION

Several countries of Asia started family planning programmes in late fifties and early sixties to curb unwanted population growth. Many of these programmes relied upon information-education-communication component of the programmes. Hence mass media became a popular strategy to convey the idea that small family brings happiness and prosperity. Main purpose of this information dissemination activity, in this narrow sense of population education, was to create awareness of possibility of controlling the number and frequency of births by means of various counter-captive techniques.

Unfortunately, these programmes have not been successful. This lack of success may be attributed to such factors as the high level of illiteracy among the people, the low status of women, social and religious preferences and the absence of any system of social security. In any case, it has been increasingly recognized that the programmes of information-education-communication addressed to adults on simplistic basis are not sufficient. Adults programmes should have a strong component of education, but at the same time it is necessary to provide relevant education for the child of today who will be the adult of tomorrow.

In most Asian countries, children under 15 years of age constitute a large percent of their population. These young people constitute the adult population in the next few decades and their behaviour and attitude towards family size will be of central importance in determining population growth. They need to become aware of the problems caused by population pressure for individual, the nation, and the world, and to be provided with an education that would enable them to make informed decisions about population issues. To do so, it seems that a combination of various stages and approaches are desirable. And population education is one of those strategies that could be very effective in bringing about attitudinal change towards population education. As to what kind of population education will be most effective for them is still not clear. However there is an immediate problem of trained personnel and related material in the area of population education.

As a result of the recognition that education is an important instrument for bringing about change in attitude and behaviour many countries in the Asian region have taken an interest in developing population education programmes. And interest of various governments in training programmes for the workers and teachers of population education is necessary extension of this recognition.

Teachers and workers of population education are in a way agent of educational change. Unless they perform their role effectively, population education may slow down and may not get properly integrated with other developmental activities of a country. So, it is important that these teachers and workers do a good job in relation to the tasks assigned to them.

Fortunately, some countries have fairly developed expertise in the areas of population education and they have professionalized their population related activities. And in other countries there is a need to help workers in the area of population education and to get them acquainted with those professional techniques which are likely to help them do their job in a better way.

The following types of social developments have posed challenges to population education planner and administrator: broadening of the concepts related to population education and evolving new systems of education for them, growing unemployment in the world, increased awareness in the public about the need for population education and the lack of directions to them in this area of awareness, growing rate of psychological problems and the felt need for more health related facilities. Because of the nature of the system in which they work, the population education teachers and workers are in a unique position to respond to these challenges by equipping themselves with the capabilities required to deal with these challenges. Some training technology is available in this regard and more appropriate training technology need to be developed.

2. METHODS OF EDUCATION/TRAINING PROGRAMS AN INQUIRY/DISCOVERY APPROACH

In schools, population education is aimed at influencing the student's attitudes and behaviour toward problems and issues and it is taken for granted that the subject matter is controversial.

These two considerations necessitate developing in a student (or out-of-individual) the skills for making responsible decisions about the controversial issue of his reproductive behaviour. In making responsible decisions, the student has to have complete information concerning an issue. And only through an analysis of the pros and cons and exploration of alternative actions the student can arrive at a responsible decision.

Given this objective and the controversial nature of the subject matter, it is obvious that the teaching method appropriate to population education cannot be one in which the teacher is a dictator in his style. Rather, the ideal teaching method should present and evaluate plausible alternatives in terms of the advantages and disadvantages associated with each. In short, what the population education programme aims to develop in the type of student who can freely make responsible decisions, rather than one who will, automatically and unthinkingly, decide on a small family.

The programme aims to develop the type of population education teacher or worker who can observe, describe, predict and understand what changes in population mean: what is the effect on the family of having few or many children; what is the effect on society of having many more younger people than older people in the population; what affects the growth of population more birth rates or death rates, etc.

1. What is the inquiry approach?

The inquiry approach is a teaching style where the learner, with the minimum guidance from the teacher seeks to discover and create an answer to a recognized problem acquire, they also gain experience that help them to learn how to learn. For example, instead of listening to an authority on the advantages and disadvantages of having few children, the learners themselves are guided to probe the issue of family size.

2. It is conceptual instead of factual.

The inquiry approach is built around basic concepts and generalizations. Instead of merely enumerating the beliefs, values and practices of a group of individuals concerning family size, the students themselves examine systematically the beliefs, values and practices in their own communities that favour a large family. Afterwards, they evaluate what they have gathered.

3. It is student-centered

The student plays a more important role in the inquiry approach as compares to his role in the expository approach. He works cooperatively with the teacher in exploring the various facts of the problem instead of merely listening to the teacher about it. The student does the actual investigation while the teacher serves as a facilitator providing assistance only when required.

4. It requires action

The inquiry approach views the student as active mover of the things as opposed to passive recipient of commands. The student actively participates in the entire learning sequence. In this process, he is trained to become not only an independent learner but a critical thinker as well.

5. It uses content not as an end but as a mean to attain other important purposes

In the inquiry approach, the processes he goes through help him to develop his learning skills. He becomes more critical. He learns to probe issues, to analyse and to discriminate and to make decisions on alternatives.

Inquiry is not the discovery of an answer that is picked from a book, but rather, the development of an answer or solution by the learner himself based on the result of his search and investigations. This means that in his search for right answer or reply to a felt question, the student thinks over several sources of pertinent data, organizes and analyzes the information, concludes and decides on the best possible solution. Briefly speaking, the inquiry approach means getting answers to questions through the collection and analysis of information.

The primary goal of the inquiry approach, according to one prominent authority, is "to provide the students a sense of efficacy, i.e. the belief that they have the skills to look critically at their environment and to a large measure, control their own destiny and influence the decisions affecting them." This involves more than simply knowing where to get the needed data. It requires also an attitude of curiosity, the ability to evaluate and analyze a problem and the ability to use information and observations in validating the conclusion. Thus, the inquiry approach aims at developing in the learners those skills, values, attitudes and knowledge that will enable them to think critically so that they may become independent problem solvers. If the learners are trained to recognize important problems in their environment and suggest plausible solution, it is hoped that they will grow into reasonably adults.

Some outstanding characteristics of the inquiry approach identified in the literature are:

6. It is more effective

It is more effective than the traditional expository approach in terms of bringing about learning in stimulating critical thinking and more active participation and in developing in students, a favourable attitude towards the subject matter and other related things.

Values Clarification as a Teaching Method

Population education is controversial and value-laden. Such population issues as when to marry, where to live, what occupation to engage in, when to have the first child and how many children to have involve values options. People attach differing values to and there are also other many larger ethical issues that have to be considered in the proper implementation of population education programmes.

1. **Freedom:**

An important ethical issue in population education is related to freedom. Some people believe that freedom to procreate, should not be dictated. The Declaration of the 1968 United Nations International Conference on Human Rights guarantees this. It states that "... couples have a basic human right to decide freely and responsibly on the number and spacing of their children and the right to adequate education and information in this respect". However, freedom to have children has to be viewed in relation to human desire to enjoy a decent quality of life. A World Bank survey estimated that for the total world population of about 4,000 million in 1975, 570 million were undernourished. 800 million adults were illiterate. 250 million children were not enrolled in school, 1,500 million children had no access to effective medical care, 1,300 million had less than US \$ 90.00 income per year, 1,700 million had a life expectancy below 60 years, and 1,030 million had inadequate housing. At the same time, others believe that freedom to have as many children as one wants will limit man's ability in agriculture, employment and enjoyment of recreational facilities. This camp also contends that explosive population growth would mean giving free hand to noise, congestion and environmental deterioration.

2. **Economic Development**

In Asia, children are important assets for families, especially in agricultural communities. In many cottage industries, children are engaged in earning extra income for their family. Likewise, the reliance on children as security for old age is very common in most Asian countries. Many argue that when a child is born, he is equipped with all the necessary tools to earn his living so it is not just for us to object to his coming to the world.

Some also contend that children are economic liabilities. They justify their proposition on the basis of what they spend on food, clothing and education, while raising children. In extreme cases, in some western communities, a choice is made between having an additional child or buying a second car.

3. **Politics**

Family planning and population regulation efforts have been looked upon as a systematic ways of reducing the population various ethnic groups. There are also fears arising from the fact that population regulation may ultimately reduce a country's manpower relative to another, especially for the purpose of defence.

4. **Distributive Justice:**

There is also the ethical issue of who should bear the burden of reducing family size. Some people thinks that only the financially poor and genetically inferior (including those with a low intelligence quotient should not have more children) should be told to reduce the number of their children. In other words, those who can afford to, can have as many children as they want in fact, this group thinks that the highly intelligent, handsome and beautiful should in fact procreate more for the sake of improving their race.

On the other hand, there is another group who thinks that the burden of reducing family size is the responsibility of all rich or poor, intelligent or dull and beautiful or ugly.

5. **Population Education**

Making people adopt measures for limiting family size is not easy considering all the above issues and dominant familial values. Population control programmes that have an element of disguised coercion in any form have a scant chance of becoming effective. A longer lasting and more effective way of regulating population growth is through a reorientation of values and attitudes - particularly of the young, who will be the parents of tomorrow. This can be done through education. Education thus views population, not as a problem to be solved, but as a phenomenon to be understood. It cannot prescribe solutions which might violate people's beliefs and values. In teaching population education hence, a special strategy is needed.

Values Clarification:

The basic assumption of a value-fair population situation is that there are no decisions or actions which are by nature "right" or "wrong". So, it is the task of the educator to provide content (both factual information and information relating to different value positions) which will enable a learners to evaluate the range of options relating to a given population issue.

The educator's obligation is to present content in a value fair manner, to make clear the reasons for his own opinions and encourage other positions to be developed and defended; it is the learner's responsibility to ascertain their own positions, make their decisions and determine their actions. As long as their judgments are arrived at by a process of conscious and informed evaluation and decision-making which takes into account personal and social consequences, their attitudes, decisions and actions will no way be pre-ordained. (UNESCO)

Research has shown that through value clarification, learners have acquired the ability, to use both rational thinking and emotional awareness and to examine their personal and social values. Besides, they have also learned the skills to resolve value conflicts and to act according to their value positions and choices.

According to Simon, Howe and Kirschenbaum, value clarification is designed to engage students and teachers in the active formulation and examination of values. It is not to teach a particular set of values. There is not sermonizing or moralizing. The goal is to involve students in practical experiences, making them aware of their own feelings, their own ideas, their own beliefs, so that the choices and decisions they make are conscious and deliberate and are based on their own value systems.

Some Elements of Values Clarification:

1. Cognitive Vs. Effective Approach:

Some value clarification strategies emphasize the affective process, based on the premise that values are more easily developed subjectively and through empathy. Other strategies stress the cognitive process, as values are considered products of thinking rather than feeling.

2. **Student-Teacher Involvement:**

Different degrees of student-teacher involvement can be used with the values clarification approach. Some strategies are better facilitated if the students discover their values by themselves, without any help from the teacher. Other strategies require minimum teacher participation to facilitate implementation of major activities by the students.

Another strategy has a greater degree of teacher participation. In such a strategy the teacher tries to create conditions which will encourage students to identify issues; clarify, probe, and if possible, resolve conflicting ideas and opinions. A group of experts have identified the following set of principle as guidelines for the population education teachers.

1. View yourself as a facilitator of learning rather than expert on values.
2. Before using a value clarification activity with your students take time to go through it carefully. Then, if possible, test it with a small group before using the activity with a large group
3. Establish rapport with the group and create a climate in which individuals feel safe to explore their values. A classroom atmosphere of openness, trust, honesty and acceptance as well as respect for others should prevail.
4. Emphasize this basic ground rules of value clarification: people are to share only what they feel comfortable in sharing. Whenever students do not want to respond, they should be allowed to do so. It should also be stressed that there are no wrong answers.
5. Encourage students to strive to listen to and; understand one another and not to moralize or criticize one another.
6. Participate in the exercises and discussions whenever possible. Be aware of your value biases and do not impose your values on others in other words, be non judgmental.
7. Ask questions that are likely to explore values effectively.

Other Methods of Teaching

Symposium:

The symposium is a combination of the lecture and discussion methods, it requires, on one hand, a number of speakers who give an oral presentation of a certain topic each speaker taking one of its -aspects or expressing a different point of view. On the other hand, it requires the presence of a number of listeners who follow the presentation and at the end participate in discussions by asking questions. Symposia are widely used in almost the programmes of adult education in the Asian Countries. They are important for population education programmes.

Organizing successfully symposia requires a good deal of preparation. This involves the selection of moderator and speakers, contacting them and securing their agreement to participate, bringing them together before convening the symposium in order to know each other and agree about procedure to make necessary arrangements.

Role-Playing:

Role-playing implies a dramatic situation in which the learner is asked to play the role of a person who holds a different or even opposite belief or system of values. By identifying himself with that person, the learner will have to fact in internalize his feelings, appreciate his desires and aspirations, and understand the motives behind his behaviour. Thus, the learners, attitudes towards that person change. Exposing him later to facts and information, the changes will be reinforced.

This method requires time, money, and well-trained personnel. Perhaps this is why it is not used as frequently as other methods.

Demonstrations:

Demonstrations are used when the aim is to teach a new technique, method, or way of doing things; e.g. the introduction of a new technique in combating population related attitudes of people. In such cases, the learning situation is so much complicated that language alone will not suffice in dealing all its elements. There are machines, materials, and instruments which are new to the learner. There are also processes which have to take place in a certain order. Finally, there are the principles and functions which lie underneath those elements and which have to be learned in order to complete the task successfully. For all these reasons, the instructor performs the task before the learners and calls their attention to the step involved. Meanwhile, he takes every care to enable them, through explanation and discussion, to understand each step, how it is performed, and why it is performed in that way.

Practical Training:

Practical training is usually used when the aim is the acquisition and development of practical skills. He must perform the task a number of times under guidance until he becomes skilful in doing it.

The nature and use of practical training varies with the importance given by the programme to the development of practical abilities and skills. In a programme such as vocational training, where the development of vocational skills is a major objective, such method is the basis of the programme. In a programme such as population education or functional literacy, practical training is used as frequently as other methods. It should be added that more adult education programmes are now adopting some sorts of practical training as a means of meeting the demands of development and technological changes.

Pre-Service Training Programmes

Pre service teacher education equips the entrant with the preliminary orientation and skills required for a satisfactory performance in an occupational role. It is, therefore, geared to the academic and professional needs of the "recruit", and the level of a programme correspond to the stage of the education system at which such initiation is sought, i.e. senior secondary, undergraduate, post-graduate or research.

Traditionally, pre-service teacher education has been long-term and institution-based and has tended to rely on formal programmes. In the Asian region such institutionalization has imposed a rigidity of structure which has isolated pre-service educational institutions from the mainstream of the educational reforms that have contributed to the overhauling of other units of the education system. The trend has been for educational administrators to by-pass these institutions and to utilize the more flexible and quicker mode of short-term in-service teacher education programmes to meet changing social and educational needs.

This trend has been particularly marked in the field of population education. As a new curriculum area, which educators have hoped to introduce extensively into the curriculum, the content and methodology of population education has to reach a large number of teachers as quickly as possible. Educational administrators have generally preferred to organize in-service programmes within the ambit of the Ministry of Education at Curriculum Development Centres, National Research Centres or special teacher local centres to meet this need and consequently pre-service teacher education programmes remain largely undeveloped.

A few countries such as the Philippines and India have, however, made some progress in incorporating population education within the programmes of pre-service teacher education institutions. It is also increasingly recognized now that higher priority should be given to pre-service programmes since they will initiate new entrants to the profession into this field and will continue to be on-going programmes even if the original impetus is lost and enthusiasm diminishes.

In- Service Training Programmes

Introduction:

Any new curricular programme that is to be introduced into the educational system extensively and within a short period of time immediately brings to the forefront the issue of in-service training. Most Asian countries have introduced population education with a great sense of urgency, and they are committed to its diffusion on a nation-wide scale. This task requires for its successful realization the support of school administrators and the participation of a large mass of teachers, who have to be trained essentially through in-service training programmes, as the flow of teachers into the educational system through pre-service programmes is necessarily a slow process.

A number of target groups needing orientation/training the area of population education are listed below and the requirements in this regard are indicated. By an orientation programme is meant a less rigorous programme, both from the point of view of the duration of the programme and its depth, than a training programme.

Target Groups

Categories Needing Orientation

1. Administrators such as Presidents or Deans of Universities and Colleges, School administrators such as Superintendents, Education Officers (EDO, DEO, Dy DEO) and Heads of Schools.
2. School supervisors such as subject supervisors and general education supervisors, subject co-ordinators.

Categories Needing Training

1. Population education specialists who will play a leadership role in their country's population education activities;
2. University or college personnel in charge of the training of teachers;
3. High school teachers with responsibility for subject in which population concepts are to be included;
4. Elementary school teachers; middle or junior school teachers.

Need Assessment

The in-service training needs of these various groups should be identified. One method is to survey a representative sample of each target group and to analyze the data obtained.

Another approach in identifying needs is to hold a conference/ workshop with participants from the different target charge of the junior school groups. After a brief orientation to population education, the participants should be able to identify and list their needs and problems related to population education. Some of these needs and problems may be based on their observations and experiences regarding the population situation.

Modalities for in-service Training

Several modalities are presented below for providing population education training needed by various groups. The suggested approaches may require intensive full-time study, a series of short periods of training or a one day training which is in the form of an orientation. The in-service training models presented here are for school heads, supervisors, co-ordinators and teachers. Some modalities of short-term in-service training in population education are as follows:

- Model-I Phased Training Model conducted by the Ministry of Education
- Model-II Structured Training Model conducted by the University or Teacher Education College
- Model-III Mobile In-service Training Model.
- Model-IV Correspondence Course Model
- Model-V Mass Media and Self-learning Model
- Model-VI Informal Training Model

If the school programme in population education is to be a well-articulated one in the sense that material included in one subject in a grade is articulated horizontally (with the material included in other subject in the same grade) and vertically (with the lower

and upper grades), care must be taken to see that teachers are trained and deployed in such a manner that the intended articulation is maintained and that there are no discontinuities that would tend to nullify it.

Distance Training

The traditional methods of in-service training through short term programmes, seminars and workshops are extremely inadequate in view of the size and distribution of population education students and managers needing training. Because of this it has been found that distance teaching modality holds out the most promising solution to this problem.

Distance teaching introduces the practice of self-learning. It is an effective mechanism for both in-service training and professional growth of educational personnel. Its advantages lie in its economy (with less costs and more people can be covered), coverage (a large number of people can be covered simultaneously over a short period of time), its characteristic of continuing learning on the job without disturbing the job, the possibilities of reaching distant corners of a country and the scope for the learner to work at his own pace.

While the advantages of distance teaching are many. In order to cash on the advantages a lot of effort is required for preparing distance teaching material. Poorly prepared distance teaching materials, inadequate attention paid to organizational aspects, lack of supplementary training efforts like contact sessions and lack of organizational support for the learners from their own organizations may come in the way of achievement of the desired objectives.

3. ORGANIZING TRAINING PROGRAMMES

The Purpose of Training

From an operational view, it is useful to realize that whereas education aims at preparing a person generally for successful living in the society of which he belongs, training strives to prepare a person to carry out a specific set of tasks in relation to particular occupation. It is a specialized and practical form of education in that it prepares the trainee to do a job well. In other words, training exists to bring about learning leading to effective job performance.

Properly conducted training in population education not only improves performance but also increases the motivation and confidence of the population education trainee. Through a series of learning activities within a training programme, the trainee is expected to manifest better understanding of the tasks to be performed, and thereby increase the efficiency and quality of his work. Thus, his behaviour is intended to be modified by means of the training process. As a result of participation in a training programme, goal-directed learning is expected to take place.

Facilitating a trainee's job-specific behaviour is the essential task for a training programme designer. To achieve this goal, it is necessary that training should be well planned.

Conditions for learning should not be taught of as being only physical. They are, above all, psychological and social. One important psychological condition is the existence of motivation to learn. The trainees need to be motivated to respond to appropriate training stimuli. Without strong motivation, learning can hardly take place. Another important learning condition is the opportunity to apply what is learned. Since most training programmes are essentially action or performance oriented, the trainees should find themselves constantly verifying, applying checking and experimenting with the principles or skills that are learned. By means of simulation and similar exercises meaningful participation should be frequently encouraged. In addition, the trainees should have opportunity for immediate feedback, another important condition to enhance learning. Then there is the fact that now two individuals are alike; each one has his own individual characteristics. This brings out the need for another learning condition: a programme that is flexible and takes account of individual differences among the trainees.

How do People Learn?

The training designer should have a good working concept of how learning takes place, for only then will he be able to carry out his task effectively?

Learning is a process by which an individual through his/her own activity changes in behaviour. This changes in behaviour may be a change in knowledge, understandings, attitudes, skills, appreciation etc.

Psychological research shows that successful learning place when:

- a) there is a need for learning;
- b) what is to be learned is meaningful to the learners;
- c) learning involves active participation by the learner;
- d) initial learning is related to what the learner already knows, rather than to what the instructor knows;
- e) when feedback is prompt.

Teaching, therefore, is essentially a process of helping the learners to:

- a) open up new vistas in the life of each individual in a meaningful, personal context;
- b) see why the things to be learned are useful to them;
- c) relate new learning to their previous knowledge;
- d) actively and freely apply what they learn;
- e) get immediate reinforcement.

Briefly stated, the instructor's main task is to create the conditions under which the trainees will have the best opportunity to achieve success in learning. While learning involves work, it should at the same time be a pleasant experience to which every trainee would eagerly look forward.

Developing Training Plans

In the light of the above mentioned considerations, it is therefore imperative that the designer of population training programme establishes effective and efficient conditions for learning, taking Psychological, social and physical factors into

consideration. The measure of success on his part is the existence of a comprehensive training pattern aimed at facilitating meaningful learning and on the part of his trainees the development of a pattern of coherent thinking and acting. It is the designer's responsibility to ensure that his trainees are systematically prepared to acquire this pattern. Sequentially, the development of a training plan may be broken down into three rather distinct stages:

- a) preparatory stage;
- b) implementation stage;
- c) evaluating and follow-up stage.

The three stages will constitute a training cycle. It is, therefore, a matter of importance to draw up a coherent plan embracing all three stages. To be precise, each stage of the plan should indicate the types of activities to be performed, by whom, for what purpose, and for how long. This will result in the development of a net work of inter-related activities.

A training plan, to be acceptable, should not only be technically and educationally sound, but it should also be economically feasible. The plan, in the final analysis, also serves as the basis for making a list of training needs. This list should be comprehensive, that is, it should show not only the financial needs but the entire spectrum of other instrumental inputs such as facilities, manpower, and curriculum etc. as well.

Identifying Training Needs

Essentially, the need for training arises only if a discrepancy is noted on anticipated between the present capabilities of persons already performing certain activities or expected to perform some new activities and the level of performance that should be attained by them. The identification of training needs involves firstly an analysis of the competencies required and secondly an assessment of the extent to which these competencies exist. These two exercises provide the basic data for planning training.

Existence of Adequate Institutional Support

A training programme can be effective only if it is adequately supported. The types of support needed are many. One type is technical; others are administrative, personnel, financial infrastructural, social and even political.

The maximum utilization of available non-financial resources; is a matter of great importance. Too often, there is a tendency to think of improving a training program by first seeking more and more money, whereas the problem is not always financial. By increasing efficiency and by making improvement wherever possible, the training establishment should be able to show improved performance without necessarily consuming more money than before. Staff support in particular needs special attention since many aspects of programme operation depend on the enthusiastic participation of staff members.

Determining Training Objectives

Training objectives are to be derived from the overall objective or goal of teaching population education. Unless it is known what the output should be, it would be futile to talk about the success or failure of training.

Formulating population training objectives, then is a way of describing the characteristics of the desired output. It is only by using an operational formulation of these objectives that the designer would be able to decide upon performance criteria or measures of success.

Training objectives should be viewed from two points of view, namely that of the trainer and that of the trainee. Consequently, in formulating objectives operationally, the role of each of them needs to be clarified.

Designing Training Programmes

Designing a population training programme is the next logical step after the training objectives are formulated. The programme has to be designed to achieve the objectives that have been decided upon. The programme should be formulated in a manner that will clearly show the three broad areas of concern: the knowledge base, performance skills and attitudes. Depending mainly on the function of each training programme, and the types of people attending it, different types of training programmes should be designed to meet the specific needs of various groups.

It is not possible to execute one standard programme for all types of objectives for all types of people and expect it to be effective at the same time. In fact, it is impossible to design such a training programme. To be effectively, therefore, specific training activities will have to be formulated to ensure that the programme is relevant to a particular situation, for the reason that the training needs for different situations may not be the same. An analysis of the job to be performed provided the basic information for the design of a specific training activity.

On the basis of his knowledge of instructional objectives, the population education training designer has to assess his needs. He has to determine what is to be done by each group of individuals, the trainer (s) and the trainee (s).

What (and what not) to put in the training activity is a question of determining content appropriate for meeting the objectives. Without explicit guidelines, the designer could run the risk of putting in too much or too little content, or fall into the trap of putting in interesting but irrelevant elements.

Training Approaches

No particular training method is superior to all other possible methods. Each one has its own merits strengths and limitations. The desirability of a particular training method (or of a combination of methods) is a question to be determined in relation to a number of factors:

1. the nature of a specific instructional objectives;
2. the situation in which teaching-learning interaction is to take place;
3. the role which the learner is expected to play in the training process;
4. the extent of support: available in terms of learning, materials and facilities;
5. the level of familiarity and mastery of various methods on the part of the training instructor.

In actual practice, the errors or failure in operationalizing a training programme depend largely on the last mentioned factor. It is not uncommon to see teachers using the same approach for practically all sorts of training objectives, in all kinds of learning situations and with all types of audiences. This tendency may be due to the overall traditional climate that is not conducive to change. Or to the lack of leadership support that encourages the use of new and varied methodologies, or even to the lack of determination on the part of the instructor himself to follow new avenues in the teaching-learning encounter. But more importantly, it could also originate from the lack of knowledge of a great variety of methods.

The wide spectrum of training methods may be categorized in a variety of ways. One useful way of doing this is to make a distinction between:

- a) predominantly teacher-directed methods; and
- b) predominantly student-managed methods.

To be sure, no training method is entirely teacher-directed or student managed. Even in a prepared lecture (as one form of teacher-directed method), it is always possible (and desirable) to outline the role of the student. The application of this approach of specifying the role of both the teacher and the learner for a particular method will aid the training designer to draw up a list of specific activities useful for the proper management and implementation of the training programme. When needed, further refinements could be introduced under the second (student-manager) category as follows:

- a) activities to be performed individually;
- b) activities to be performed in small groups;
- c) activities to be performed in the entire group, indicating further what is to be performed, how and when.

With this type of information in hand, it should be a matter of judgement to decide on the selection and general pattern of the teaching-learning approach to be used. Theoretically and in general terms, the training instructor should be knowledgeable regarding the potential and limitations and on the technical requirements of a variety of methods. In the hands of an inspiring instructor, each method is a new method. He will bring the basic principles to life. It is here that teaching is an art.

4. EVALUATING TRAINING

The following are the relevant questions concerning the evaluation of a training programme:

- Why should to evaluate training?

- For whom should training be evaluated?
- What should be evaluated in training?
- How should training be evaluated?

Answers to these questions will help to plan evaluation more systematically.

Importance of Evaluation

People involved in training want to know whether training has fulfilled the objectives for which it was organized. The following purposes are served by evaluation:

1. Feedback on Effectiveness:

There is a legitimate and genuine interest to know if training has been effective. Those who invest resources in training (the government or other agencies) want to know if the expenditure has been worthwhile; those who invest effort in training (the trainers) are genuinely concerned whether their efforts produced the desired changes; those who receive training (participants) are equally interested in knowing whether training helped them.

2. Feedback for Improvement:

The immediate use of such feedback from evaluation can be helpful in improving many aspects of a training programme.

3. Feedback for Action:

The feedback from evaluation should also help the respective groups or individuals to use it for appropriate action. For example, evaluation may indicate what the work organization should have done (and in future can do) to make training more effective - both pre-training and post-training action.

4. Feedback for better Control:

The most effective use of feedback from evaluation may be to provide overall control on training as an instrument of change. Evaluation may help in making necessary adjustments to make training more effective.

Clients of Evaluation

There are several partners in the training act and process, and all of them are the clients of evaluation. Their needs for feedback and use of feedback for improvement (control) will naturally be different with some overlapping. There are four main partners in training (and clients for evaluation):

1. The participants or learners.
2. The training organization or institute, including:
 - a. Curriculum planners
 - b. Programme designers
 - c. Programme managers
3. The faculty of facilitators or trainers
4. The client organization, the ultimate user and financier of training.

Dimensions of Evaluation

The following dimensions are worth mentioning for evaluation of training:

1. Context: (factor not directly related to training, but significant ones affecting its effectiveness. For example, boarding and lodging arrangements).

2. Inputs (what is contained in the training – the curriculum the contents).
3. Outputs (the result of training in terms of better understanding, change of behaviour, or improvement of practices in the organization).
4. Process (The climate of the training organization, the relationship between participants and trainers, the general attitudes and approaches of the trainers, trainees, training methods and materials, etc.).

Procedures for Evaluating Training

The question of how to evaluate training involves two aspects i.e. the overall design of evaluation and the specific techniques to use in evaluating training.

Evaluation Techniques

Evaluation techniques can be classified in various ways. One way may be to classify them into response (reactive) techniques and unobtrusive measures or secondary source data techniques. Techniques requiring some kind of response produce some reaction in those who are responding. The very act of asking people questions (orally or in a written form) may produce change. Since they produce reactions these are also called reactive techniques. Other techniques can be called "unobtrusive". These make use of available data or secondary source data. For example; to measure whether general morale has improved in a unit, it may be more useful to use secondary source data like examining figures of absenteeism rather than asking questions.

In fact, unobtrusive measures or secondary source data may be much more creative and imaginative and need to be discovered and used more often, for evaluation. Another non-reactive technique, a very old one, is that of observation. Observee know that they are being observed.

Evaluation techniques usually collect data from participants, and these are, therefore, called response or reaction techniques. The methods of data collection may included interview, written reactions (questionnaires, scales, open-ended forms), and projective techniques. One additional method in this category worth mentioning is group discussion by a small group consisting of individuals having experienced and enough knowledge about population education may give better evaluation results than figures calculated from routine responses.

The greatest contribution to the development of evaluation techniques has been made by advances in scaling techniques. Techniques based on well prepared instruments to measure various dimensions are being increasingly used. Various method of scaling can be used to develop effective evaluation techniques. The three well known scaling techniques (associated with Thurstone, Likert and Guttman) can be imaginatively used in preparing new evaluation tools. More recent developments have opened new vistas for sophistication in evaluation work.

While evaluating training, the purpose and the clientele of evaluation should first be clarified. Ordinarily a training institute may undertake reaction or response evaluation

of the contextual factors of every training programme. When a programme has been conducted for a long period of time, a thorough evaluation may be undertaken to answer several questions, from pre-training work post-training support and utilization.

5. SUMMARY

Teachers and workers of population education need training to materialize the programmes and policies relating to many aspects of population related problems and issues. Some countries have fairly developed expertise in this area but in other countries there is a need to help the population education teachers and workers so that they may do their job in a better way.

In this unit, concepts and technique relating to the training of population education of teachers and other workers have been discussed. The most important of these techniques are inquiry approach and values clarification. Other useful techniques that are very often used to communicate the messages of population education are symposium, role playing, demonstrations and practical training other topics that were discussed in this unit are the organization and evaluation programmes for population education.

It is expected that at the end of this course the learner will be able to appreciate the need for training in the area of population education and will be able to use various teaching techniques relevant to population education programmes. Further, he will also be able to respond to the tasks related to the organization and evaluation of such programme.

6. SELF ASSESSMENT

A) Multiple Choice Items

1. Research has shown that through value verification method student learn:-
 - A. to work hard and understand standards,
 - B. to resolve value conflicts,
 - C. to be emotionally disruptive,
 - D. to solve population problems,
 - E. to be extremely active.
2. Distance teaching introduces the practice of:
 - A. Classroom practice.
 - B. Population education.
 - C. Team teaching.
 - D. Machine teaching.
 - E. Self-learning.
3. Inquiry approach is a:
 - A. Teaching style.
 - B. Best style.
 - C. Way of doing research.
 - D. Innovative idea.
 - E. All of the above.

4. The primary goal of inquiry approach is:
- A. to list a strategy of education.
 - B. to equip a student with necessary training skills.
 - C. to provide the student a sense of efficacy.
 - D. to design a method of instruction.
 - E. to solve students problems.
5. High level of literacy rate is one of the factors that is contributing to the:
- A. Success of family planning programme.
 - B. Education of masses towards population problems.
 - C. Low level of families.
 - D. Lack of success of family planning programmes.
 - E. None of the above.
6. The low status of women is contributing to the:
- A. Success of family planning programmes.
 - B. Education of masses towards population problems.
 - C. Low level of families.
 - D. Lack of success of family planning programmes.
 - E. None of the above.
7. The absence of a social security system is one of the factors that are contributing to the:
- A. Success of family planning programmes.
 - B. Education of masses towards population education problems.
 - C. Low level of families.
 - D. Lack of success of family planning programmes.
 - E. None of the above.
8. The most effective use of feedback from evaluation may be:
- A. To provide overall control on training as an instrument of change.
 - B. To use feedback for evaluation.
 - C. To identify the clients of evaluation.
 - D. To state the objectives of a training programme.
 - E. None of the above.
9. In evaluation, context may be:
- A. the inputs
 - B. lodging arrangements.
 - C. process skills.
 - D. The curriculum
 - E. Training outcomes.
10. Teaching is a process of helping the learner to:
- A. See why the things to be learned are useful to them.
 - B. Relate new learning to their previous knowledge.

- C. Actively and freely apply what they learn.
- D. Get immediate reinforcement.
- E. All of the above.
- F. Some of the above.

B) True and False Items

- | | | |
|--|---|---|
| 1. Information level programmes are sufficient to convince the people concerning the need for family planning. | T | F |
| 2. Population education is not value laden. | T | F |
| 3. Pre-service training programmes should be replaced with in-service and distance education programmes. | T | F |
| 4. Evaluation implies feedback. | T | F |
| 5. Training objective is the next logical step after the training programme is designed. | T | F |
| 6. Successful learning takes place when feedback follow up. | T | F |
| 7. The subject matter of population education is not controversial. | T | F |
| 8. Inquiry approach is exactly equal to problem solving method. | T | F |
| 9. Mass media is the single best technique to convince people with the idea of small family is a happy family | T | F |
| 10. Family planning programmes have been very effective in achieving the objectives of population education. | T | F |

C) Short Answers

1. What is meant by the word value? Explain.
2. State the most important reason for pre-service training.
3. Name any two elements of value clarification.
4. What is difference between in-service and distance training programme.
5. List new types of social developments which have posed challenges to the population education planners and administrators.
6. Define inquiry approach.
7. What is meant by a training cycle.
8. Name the two aspects of overall design of evaluation.
9. What is the use of distance education

7. ANSWERS TO SELF ASSESSMENT QUESTIONS

A) Answers to multiple choice items:

1.	B	2.	E
3.	A	4.	C
5.	D	6.	D
7.	D	8.	A
9.	B	10.	E

B) Answers to True and False items:

1.	D	2.	F
3.	F	4.	T
5.	F	6.	F
7.	F	8.	F
9.	F	10.	F

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UNIT 4

MONITORING AND EVALUATION

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INTRODUCTION

Monitoring and evaluation share a common characteristics i.e. both involve the collection of information to make decisions about programmes. For this reason, many educators use monitoring and evaluation interchangeably as if no difference in emphasis exist between them. At the outset, it should be pointed out that monitoring is mainly concerned with assessment of the mechanics, of programme implementation, including logistics. In evaluation, judgment of worth is involved. In general, monitoring and evaluation are components of the same continuum.

The monitoring and evaluation of the project is a systematic procedure to collect and analyze information associated with the implementation of the project. The monitoring of the project relates to planning and management of the project. The purpose of monitoring is to provide timely information and give feedback to the management on vital stages in project implementation. The monitoring of the project is a concurrent activity associated with every stage of the development of the project. The periodic feedback on the progress of the project helps project management to know the achievement of the project vis-à-vis targets and helps the management to take appropriate steps for proper implementation of the project. It can correct lagging time-schedule, synchronization of related project activities and identify the gaps in various components of project implementation. It is a system of forewarning on the deviation of the project from its chartered or targeted course.

Monitoring enables a continuing critique of the project's implementation and effectiveness, whereas evaluation is concerned with an in-depth analysis of the project's impact i.e. how well the project has achieved its objectives according to the set criteria. In the absence of effective system of monitoring and evaluation, the strengths, weaknesses and positive results cannot be clearly identified. Monitoring involves the smooth flow of information to different levels of the project and effective feedback for corrective action. Feedback provided by the monitoring process is the most crucial element of this system. While monitoring mainly deals with the flow of information to guide and facilitate decision making regarding management of the programme, evaluation is a much wider concept, it is a broader process of collecting evidence for judging the effectiveness of different stages of the programme. Monitoring and evaluation has to be related to the broad objectives of the population education programme. The focus of these exercises should be on the improvement of the efficiency of the programme. With a view to maximizing learning and enabling learners to transform their lives through learning and the application of learning in their day to day activities.

OBJECTIVE

After studying this unit you will be able to:

1. Define the term 'monitoring' clearly
2. Describe the types of monitoring
3. Explain the conditions for successful monitoring system.
4. Write a brief but comprehensive description of monitoring process
5. Elaborate the monitoring techniques
6. Clearly define the term "evaluation" and its application.

7. Describe the need for project evaluation.
8. Describe the role of evaluation in population education projects.
9. Explain the evaluation levels and stages
10. Discuss the evaluation models and steps in designing the project evaluation
11. Develop the evaluation framework
12. Describe the difference between monitoring and evaluation.

1. MONITORING

Monitoring, as a part of evaluation, may be defined as a process of watching periodically the progress of a programme or project with a view to identifying shortfalls, if any and taking appropriate corrective measures in order to optimize the efficiency and effectiveness of the programme. Monitoring is an essential component of all the population education programmes. The main objectives of monitoring are to:

- a) assess the progress of programme/project with reference to their immediate and long-term objectives;
- b) identify necessary action in order to ensure efficiency and effectiveness of the programme or project;
- c) provide feedback information for adjustments in work plan and budgets; and
- d) provide information on future programme needs.

The process of monitoring is shown in figure 1. It can be divided into four stages or steps viz planning, inputs, processes and outputs. These normally form the main ingredients of any project or programme. The planning stage involves setting the objectives of the programme in terms of immediate, intermediate, and ultimate and deciding the plan of operation. The target groups to be covered and the scope and duration of the programme are also fixed. The inputs, external and internal, in the form of men, money and materials are provided to the programme. This leads to the third stage of implementation of programme which involves the development of materials, training of personnel, research as well as management of the different components. The fourth stage completes the cycle of monitoring in which the outcomes of the programme in terms of material, learning outcomes, personnel trained and achievement of objectives are assessed. Each of these stages is complementary and interrelated.

Monitoring is a process of watching periodically the progress of a programme or project with a view to identifying shortfalls and taking appropriate corrective measures in order to optimize the efficiency and effectiveness of the programme.

1.1 Types of Monitoring

Monitoring can be classified under four main categories depending on the functions it serves. These are: (i) financial, (ii) administrative or management, (iii) technical/academic, and (iv) physical.

1.1.1 Financial Monitoring is one of the important components of any programme.

The availability of funds in adequate quantity at appropriate time will determine, to great extent, the smooth implementation of programme activities. It is, therefore, necessary to find out whether the, funds are being

made available to the project on time and whether these are being utilized as per work plan and according to approved financial procedures.

- 1.1.2 Administrative monitoring involves strengthening of management and organizational structure of the programme at various levels, where they exist and creation of new set up where it is required. Besides, the set up and strengthening of the infrastructure, arrangements for the training of personnel, production and distribution of materials, purchases and supply of equipment, creation of Advisory/Coordination Committees at various levels and other such functions come under the purview of administrative monitoring.
- 1.1.3 Academic or technical monitoring is one of the most important aspects of any successful programme. It involves the monitoring of technical inputs and progresses that go into the programme - such as quality of training programmes; type of supervision and guidance available at various levels; types of materials available and their relevance to learner's needs, requirements and interests, etc.
- 1.1.4 Physical monitoring of the programme is equally important, e.g. the location, time, physical facilities, etc. go along way to determine the success of the programme. The equipments and materials needed for programme implementation will be stated in the plan. These should be supplied strictly according to the specifications and the time schedule mentioned in the plan, it should also be one of the responsibilities of the exercise of monitoring to ensure that equipment purchased for the-programme is not diverted to other programmes.

1.2 Conditions for a successful Monitoring System

There are certain pre-requisites of an efficient and effective monitoring system. These are: (i) Regularity, (ii) Accuracy, (iii) Promptness, and (iv) Completeness.

- 1.2.1 Regularity refers to the submission of reports and returns at regular intervals. Much value of reports is lost if these are delayed and do not reach the concerned person time.
- 1.2.2 Accuracy of information is another factor as it provides credibility to the programme. If the supplied information is inaccurate, it will be of little use in taking corrective actions.
- 1.2.3 Promptness is analysis, and supply of feedback to the concerned persons is crucial in monitoring.
- 1.2.4 Completeness of information and feedback is also an important condition in monitoring. If the information provided are incomplete, even if supplied regularly, accurately and promptly, will be of little use in taking any decision or action for the improvement of the programme.

Self-Assessment Test-I

1. Here are some statements. Tick the letter "T" if the statement is true. If the statement is false, tick "F".

T	F	Promptness in analysis and supply of feedback to the concerned persons is crucial in monitoring
T	F	Monitoring is not a part of evaluation.
T	F	Academic monitoring is concerned with the quality of training and type of supervision and guidance available.
T	F	Delay in monitoring reports has least effect on the programme or project evaluation.
T	F	If the supplied information is inaccurate it will be of little use in taking corrective actions.
2. Four types of monitoring are;
 - i. _____ monitoring
 - ii. _____ monitoring
 - iii. _____ monitoring
 - iv. _____ monitoring
3. What are the conditions for a successful monitoring system?

1.3 The Monitoring Process

Monitoring may include analysis, reviewing and evaluation of the progress in terms of (a) Financial-cost and expenditure, (b) physical - production performance and physical progress/achievement, (c) Time for completion of various activities including administrative activities and sanctions, (d) Avoiding pitfalls experienced in similar situations, and (e) incorporating procedures of advantage in reducing cost and time-frame obtained from experience elsewhere.

The first task in introducing a monitoring system is to clearly identify the educational objectives, targets, strategies and the concrete tasks and actions to be performed according to the schedule. In introducing a monitoring system one must also consider the question of costs. Too frequent monitoring, or monitoring with excessive data, can become not only costly but also co-productive. A decentralized system of management would ensure that monitoring takes place at different levels with relevant data.

Achievement of specific objectives involves a series of planned operations, each of which has to be completed at a specific time so that subsequent steps can proceed. Monitoring helps to ensure that various steps are completed by the concerned persons. Monitoring also helps in enforcing accountability for the performance of various tasks by clearly bringing out how much of the tasks are performed, by whom, in what time and with what quality.

It is necessary to ensure linkage between targets and resources so that the targets are physically achievable within the resources allocated/provided on reasonably

realistic basis. The basic purpose of monitoring is to identify the areas requiring corrective action in order to ensure successful implementation as per the schedules. The monitoring function involves (i) watching actual performance, comparing it with the targets and identifying shortfalls, (ii) raising warning signals in advance by observing the actual physical progress of critical milestones as per the network in terms of the scheduled dates as well as the latest allowable dates of completion and informing the decision-makers, (iii) identifying the problem areas, analyzing the problems, suggesting action areas, and (iv) giving feedback of the decision to the implementing agencies, developing data bank etc.

Summary of essential features of monitoring:

- monitoring is an integral part of management;
- monitoring functions may not be seen as "external" intervention;
- supplementary data must be used to fill information gaps and not to duplicate existing resources;
- integrated orientation of the monitoring staff be ensured;
- the key to success in monitoring is a combination of timely action, concise reporting, and flexibility in response to unexpected developments.

1.4 Monitoring Techniques

There are two techniques for the monitoring of a project. These are: (i) Programme Evaluation and Review Technique (PERT); and (ii) Critical Path Method (CPM). These techniques are being discussed in detail in the following lines.

1.4.1 Programme Evaluation and Review Technique (PERT)

Periodic monitoring is linked to the PERT/CPM analysis at the time of a plan formulation and its execution for chalking out the construction phase of a project, role of PERT/CPM techniques of construction management is quite important. Network techniques of construction management is quite important, network technique is quite useful and helps the project managers to minimize the chances of schedule slippages, cost over-run and contractual difficulties. Network technique is known under different names such as Programme Evaluation and Review Technique (PERT) or Critical Path Method (CPM). These methods are conceptually very similar. Network techniques refer to the method of planning, scheduling and control of projects, especially major projects which are of complex in nature.

1.4.2 Critical Path Method (CPM)

Critical Path Method (CPM) is a useful technique for project implementation, it is a technique concerned with finding the least cost way of carrying out a task which consists of a number of activities, at least some of which have to be carried out consecutively. Main application of this technique is in the sphere of planning/controlling construction programmes for large infrastructural and industrial projects. This technique works by first setting out the ways in which activities are related and then to find out the length of time required for completion of each activity. Any sequence of activities which must be carried out consecutively defines a path and the time taken to

complete all the activities in path simply the sum of the separate activity times.

The Critical Path is then the path with the longest completion time. It is critical in the sense that its length determines the time required by the whole task. Other paths which are not critical can be fitted around the critical path in such a way as to reduce cost. The main effort at reducing activity time should clearly be directed at activities which are on the critical path. This approach is used to develop realistic schedule based on a knowledge of resources required and the resources available and this ensures the feasibility of meeting directed schedule.

1.5 Monitoring Mechanism

Monitoring is, the overseeing of the decision making processes in programme/plan implementation to ensure the ultimate achievement of the goals. It also serves as a key link between implementation and planning by documenting experiences in implementation which would serve as a data inputs into the next planning cycle. Monitoring is very much a matter of recording the facts of implementation so that at any point in time the planner can obtain a reasonable view of the current status.

A common criticism, however, is that monitoring units do not provide information either in-time or in a relevant manner. If this is the situation then obviously monitoring is not serving its purpose and it would be necessary to reorganize the monitoring system.

For ensuring effective project implementation, monitoring is required in terms of the following parameters viz. project cost estimates (originally approved, latest approved/revised and anticipated), commissioning dates (originally envisaged, latest approved/revised and anticipated). Monitoring of these parameters gives an idea of the cost and time overrun in respect of the projects under review. This type of monitoring may be undertaken for all projects, big and small in the central, state as well as in the private sector.

However, intensive monitoring for keeping a close watch on the project implementation schedule as per PERT Chart of major projects, status of the critical milestones of the constituent events/activities of the project can be regularly reviewed on month to month basis vis-a-vis the scheduled dated of completion as well as, the allowable latest dates. In other words, monthly stock-taking can be done in terms of the critical milestones achieved during the months. Having identified the slippages, the reasons for the delays; can be diagnosed to fix up accountability. Subsequently, action areas can be listed in terms of the input and supply problems in respect of the major project inputs and supplies. After identifying the action areas, the responsible authorities can initiate action dialogue with the corresponding authorities of the sectors responsible for causing delays, with a view to fix up accountability. In other words, monitoring should be linked

with the review and problem-solving mechanism at the concerned decision-making levels for initiating action.

Further updating of the PERT networks can also become necessary in many cases where the annual plan allocations fall short of the proposed outlays, on which the original PERT charts are based. Similarly, in view of the prevalence of the inter-linkages among projects, slippages in the backward or forward projects may necessitate further revision of PERT schedules, i.e. this would require continuous updating the PERT Charts.

Under this type of monitoring, regular and timely inflow of data is inevitable/unavoidable at meaningful intervals, say on; monthly basis, so that the impending problem should be identified and timely corrective measures initiated. In case of longer reporting intervals, the monitoring remains post-facto ritual having historical significance for ensuring monthly reviews, the need for fast data collection, analysis and dissemination is imperative. For this, computerized information systems need to be developed involving wide use of telex/telegraphic data receiving and computers for data processing facilities.

1.6 Computerized Project Monitoring System

1.6.1 Why Computerized Project Monitoring

For effective monitoring of the major on going projects, a monitoring system can be designed which, can be aimed at timely identification of the warning signals for preventing time and cost-runs and avoiding slippages in the course implementation of major projects. This can help in identifying the need for initiating timely action in respect of problem areas through inter-agency coordination.

1.6.2 Process of Project Monitoring System

Under this system, monthly progress reports concerning the work/mile stones scheduled for the previous month could be prepared which may highlight identification of the critical problem areas for initiating timely corrective measures to ensure expeditious execution of the projects. A computerized monitoring system could be designed for expeditious processing of the data inflow for issuing timely warning signals. The monitored output of such a report can provide a one-point review of the status of implementation to the Secretaries of the Departments, Heads of the Public Undertakings concerned and the Chiefs at the responsible and accountable level of individual project managements. Wherever inter-departmental coordination is called for, the concerned Secretaries and senior officers can meet and discuss for methods to overcome or reduce the slippages.

SELF-ASSESSMENT TEST-II

1. Here are some statements. Tick the letter "T" if the statement true. If the statement is false, tick "F".
- | | | |
|---|---|--|
| T | F | PERT is one of the two techniques being used for monitoring of projects. |
| T | F | PERT stands for Physical Evaluation and Research Technique. |
| T | F | Monitoring is an overseeing of the decision-making processes in plan Implementation to ensure the ultimate achievement of the goals. |
| T | F | Critical Path Method is useful for short-term projects. |
| T | F | A computerized monitoring system is useful for timely processing of data |
2. Two monitoring techniques are:
i. _____
ii. _____
3. Discuss the monitoring mechanism in detail

2. EVALUATION

Evaluation is simply a tool to measure and assess the progress achieved in meeting the objectives of a project whether the project has brought changes in the attitudes and behaviour of the target audience and whether their living conditions have improved.

Another purpose of evaluation is also, of course, to take stock of project inputs and outputs, and project operations, to know if the efforts have been worthwhile and what actions need to be modified, changed or strengthened within the project to make it more effective and self-sustaining.

A systematic process of data collection and the analysis of collected data is common to both definitions. The basic difference between the two definitions is the issue of whether decisions/judgments, are an integral component of evaluation. Proponents of definition 1 agree that the results of evaluation may be used for decision-making; proponents of definition 2 consider decision-making to be a part of evaluation. For two major reasons the second definition would seem to be the preferable of the two; first, definition 2 does not preclude the process described in definition 1; in other words, definition 2 is more inclusive, the decisions of definition 2, for example, may be based on determination of the status of objective achievement. Second, the notion that evaluation can be conducted for strictly descriptive purposes, as definition 1 implies, is comparatively at best. Perhaps, ideally, the sole purpose of evaluation should be to provide feedback in order to improve the object of the evaluation, as the first definition suggest. If that were the case, evaluation would involve determining the difference (if any) between where we are and where we would like to be (our objectives) and if necessary, devising ways to eliminate or lesson the difference.

Examination of evaluation literature makes it very evident that there are almost as many definitions of evaluation as there are Evaluation "experts". With minor variations, most of the definitions basically represent one of two philosophical viewpoints, illustrated by the following two definitions:

1. Evaluation is the systematic process of collecting and analyzing data in order to determine whether and to what degree, objectives have been, or are being achieved.
2. Evaluation is the systematic process of collecting and analyzing data in order to make decision.

Because of the relative nature of the above concepts, evaluation as a process implies a comparison of the object under evaluation to another similar object used as a standard of comparison whose qualities are well known to the evaluator. Such standards could be either quantitative (size, weight, etc) or qualitative (good, bad, beautiful, ugly, moral immoral etc), in both cases standards are man-made and, therefore as evaluation criteria, they do not have universal value. This is particularly true for the qualitative criteria which are entirely subjective but which, within a particular cultural environment and within a specific time period, may acquire increased acceptance.

It is clear, therefore and there does not seem to be any disagreement on it, that because evaluation implies a comparison of what is to be evaluated with something which may be considered as a criterion, i.e. an ideal state, an acceptable behaviour, an anticipated behaviour, an intended result or goal, etc., there will be a need for collecting all relevant information on both the exact state of the object for evaluation and the criteria to be used for comparison.

For the purpose of this unit the discussion will be restricted to "population projects" or specific operational activities purposefully undertaken by different organizations. Projects would also vary in terms of complexity. The building of a school unit is a project, as is the development of a curriculum or the development of radio education system. It is apparent, however, that a school building is much less complex and much more tangible than a radio education system or even a curriculum; it will, therefore, be necessary in each case to be in a position to identify the project and all its aspects, subject to evaluation.

2.1 Why Project Evaluation/Role of Evaluation in a Project

The purpose of evaluation is to determine the current status of the object of the evaluation, to compare that status with a set of standards, or criteria, and to select an alternative in order to make a decision. There may be only two alternatives (e.g. continue the programme or not, adopt the new curriculum or keep the current one) or there may be several alternatives (e.g. many textbooks may be available for adoption). Further, every effort is based on one or more objectives, whether they are stated (as they should be) or not and the purpose of evaluation is the same regardless of the type of evaluation or the nature of the objectives, be they instructional, curricular, or project objectives, explicit or implicit, process oriented or product-oriented, short-term or long-term.

According to the general definition of evaluation, it is evident that there may be several reasons for project evaluation. For example, there may be a need to judge the importance of a foreseen project to those for whom the project is intended. There may also be a need for estimating the cost and/or eventual success of a project in relation to the total amount of money available for a particular task and/or in relation to the cost of alternative projects. Even when the project is under implementation or experimentation, there may be a need for assessing the successful implementation of the various components of the project. After the project is put into operation there may be a need to appraise the degree of success, viewing it in relation to the initial goals of the project. In addition to all these factors, there may also be a need to find out the relevance of the project as well as any side effects (good or bad) which the project might have caused.

Whether a project will be subjected to all the above types of evaluation is, of course, a matter to be decided by those responsible for the project and/or by those affected by it. Project evaluation, therefore, should be seen both from the point of view of the organization responsible for the project and from that of the recipient or client. The need for such a double and sometimes triple, viewpoint arises mainly from an eventual difference in the specific interest placed on the project by the various parties involved and/or the different evaluation criteria that these parties may wish to employ for evaluation. Although it is assumed here that during the project design stage the objectives and goals of all these agents are simultaneously taken into account, it could happen, however, that types of evaluation demanded by each of these parties, as well as the criteria employed for the valuation, might differ.

In fact, evaluation and planning functions are inseparable and indispensable functions of project management. Evaluation starts operating early, at the stage of project conception and continues throughout the life of the project, i.e. its experimentation, implementation, and operational stages. It is through evaluation that information about the eventual or actual results of a decision and/or action, implied in a project, is passed back to the project planning system in order that the necessary corrective measures may be undertaken.

2.2 The Continuity of Evaluation

Evaluation is a continuous process, contrary to public opinion, it is not what you do "at the end". Evaluation should be planned for prior to the execution of any effort and should be involved throughout the duration - that is right at the beginning, in the middle, and at the end (if there is an end). There are typically a series of temporary "ends" in a continuous cycle. Take student evaluation, for example: We start with a set of instructional objectives. Then we implement instructional strategies to facilitate their achievement. Then we measure achievement - a temporary end in the instructional cycle. Based on the results, we reassess our objectives and strategies and proceed. Thus, the process is cyclic with feedback from one cycle guiding the next. We do not just evaluate the outcomes: every stage of the process is subject to evaluation, beginning with the objectives.

The notion that evaluation must be planned for before execution is a critical one. There was a time, not too long ago, when evaluation was almost an afterthought. A programme would be implemented and allegedly do all sorts of wonderful things. Then, after some period of time, participants would start thinking about how they are going to evaluate the programme. Typically, an evaluator would be hired as a consultant to "do" the evaluation and "show" that the programme was "good". By ignoring evaluation until the end, the programme could miss the feedback necessary for the successful implementation of the project.

2.2.1 Phases of Evaluation

The evaluation process entails decision-making. Any educational endeavour involves a whole host of decisions which must be made - decisions about objectives, decisions about strategies, decisions about measurement and so forth. These various decisions can be classified in terms of when they are made. Thus, each phase of evaluation involves different kinds of decisions. Logically, we can identify three phases; the planning phase, the process phase and the product phase. The planning phase deals with "What will we do" question; the process phase asks "How are we doing?"; and the product phase is concerned with "How did we do"? A discussion of the events in each of the three phases of evaluation should further clarify the concepts. Keep in mind that the evaluation process is basically the same regardless of what is being evaluated.

Evaluation is a part of the educational management functions by which the process and the results of implementation are critically analyzed in the context of previously determined strategies and objectives. Evaluation is crucial to the continuity and constant improvement of the planning mechanisms and process from the first stage in the planning cycle to the last. This role of evaluation leads to the following two main purposes of evaluation:

- i. To ensure feed-back in the planning process
- ii. To establish a continuous and permanent process of evaluation.

2.3 Evaluation Levels

Evaluation of plans, programmes, projects and the education system may be undertaken at various levels: national, provincial, regional or zonal and local or institutional. These levels are generally determined by the degree of decentralization of the planning process. The aims of education are different at each level.

At the national level, for example, the conceptual frame work, the criteria and the evaluation indicators put the stress on the relationship between the functioning of the education system and the overall social, economic and cultural development.

At the other extreme one finds evaluation at the local and institutional levels. This deals with the detailed execution of the programme activities and resource utilization in the light of the objectives foreseen. Results may be expressed in both quantitative and qualitative terms including case study reports.

It is to be noted that already available indicators of evaluation may have built-in bias towards the provincial or national level evaluation. For the purpose of

planning and management, it will be important to evaluate the programme also from the view point of the local community, environment and their aspirations.

2.4 Evaluation Stages

According to the stage at which evaluation takes place and its relation to the execution, one may distinguish between three stages of evaluation: preliminary feasibility evaluation; and final evaluation.

2.4.1 Preliminary feasibility evaluation

This is an analysis of the coherence and consistency to be found in the formulation of a plan and is a matter of examining the plan's feasibility. At the micro level, it is desirable to verify whether the objectives have been correctly formulated and whether they will contribute to solving the problems found during local diagnosis. Verification should also be made of whether the specific objectives and the programmes and projects correspond to the plan's objectives and whether it will be possible to carry out the plan with the resources available, the existing administrative capability and taking into account other internal or external factors.

Among external factors are demographic, socio-cultural, political, administrative, economic and ecologic aspects, insofar as they influence the development of the education system. Using to the fullest extent possible the information contained in the diagnosis, an analysis could be made of the external factors during the preliminary evaluation in case constraints might appear on the proper execution of the plan.

Internal factors concern the elements contained in the plan. Here, it is a matter of analyzing the plan's internal coherence, i.e. of seeing if the general objectives are suitably formulated and if the specific objectives, strategies, programmes and projects adopted will enable the general objectives to be attained.

Generally the analysis of internal coherence is concerned with the changes foreseen by the plan, the pre-conditions for these changes, the availability of resources (financial and human) and administrative capacity to implement the plan.

2.4.2 Concurrent evaluation

Concurrent evaluation, also referred to as formative evaluation, takes place during i.e. implementation of a plan.

In operational terms, it is the observation of plan execution to the extent that it is a matter of surveying the progress made in the implementing what is programme with a view to supplying information which will enable corrections to be made of any deviations or divergences in the action undertaken to attain the plan objectives.

Concurrent evaluation needs to be carried out continuously and to be reflected in the periodic reports covering the diverse aspects of the plan. It results in taking corrective steps to secure better implementation of the plan.

In concurrent evaluation the degree of programme execution is ascertained in respect of financial, administrative, material, academic and technical aspects.

Observations may deal with the plan as a whole or in detailed form, according to its various programmes, projects and activities.

The purpose of evaluation of population education programmes is not only to obtain a measure of the effectiveness of the programmes (summative evaluation) but also to provide feedback information (formative evaluation) for programme designers, implementers and participants. In like manner, we all know the benefits of feedback (formative evaluation) information for redesigning and improving a programme. However, one of the real benefits of formative evaluation lies in its contribution to the further understanding and reinforcement of the knowledge, attitudes and behaviour of the programme recipients. Through the feedback process, programme participants discover the consequences of their attitudes and decisions accordingly modify their attitudes, decisions, and behaviours.

The results obtained through formative evaluation should be passed back immediately to those concerned with the project development. If these results show that the stated objectives are indeed being achieved, the project can continue along the lines already adopted. If results reveal, however, that the improvement sought, or the achievement of the standards desired, is falling below expectations, then steps should be taken to change the project in a direction that subsequent evaluation will reveal to be more appropriate for the achievement of the stated objectives. Only continual evaluation of this kind can ensure that the objectives will be achieved. Such formative evaluation does, in fact, occur in the construction of hardware (e.g. school building) when architects inspect and modify construction projects in process.

2.4.3 Final evaluation

Often referred to as summative evaluation, final evaluation has a double aspect. On the one hand, it coincide with the final phase of concurrent evaluation and with a view to improving later plans, analyzes results, problems, difficulties and deficiencies incoherence detected during the execution of a plan. On the other hand, it should be directed towards the development of the micro-level system so as to identify problems to be solved. In other words, subsequent evaluation concentrates on the results of the implementation of a plan for educational development and on the impact of education on social, economic and cultural development.

Two kinds of circumstances can be identified in which summative evaluation may be desirable. The first arises in a project, usually a short term one, in which the circumstances will hardly permit of any changes being introduced during the course of the project. The second circumstance in which summative evaluation may be desirable course at the end of a project during which formative evaluation had been carried out. The primary aim of formative evaluation is to ensure, through changes brought about by the feedback process, that the originally stated objectives of a project are being achieved. In many instances, however, the feedback process causes changes to be made in the initially specified objectives, because some may prove to be unattainable in their original form. Where this happens, a summative

evaluation should report on the extent to which both original and modified objectives have been achieved.

It will be seen from the above that the usefulness of summative evaluation is somewhat limited. It is rarely possible, with such evaluation, to make judgment or conclusions about any improvement that might have taken place since the inception of a project. Further, there is no opportunity to affect a change if the summative evaluation demonstrates that particular objectives have not taken place.

SELF- ASSESSMENT TEST III

1	Here are some statements. Tick the letter "T" if the statement is true. If the statement is false, tick "F".	
T	F	Monitoring provides important information base for evaluation.
T	F	Evaluation is that what is done at the end of a project.
T	f	Concurrent evaluation is different from formative evaluation.
T	f	Final evaluation is also known as summative evaluation.
T	F	Some external factors influence the development of the education system.
2.	Evaluation stages are:	
	i. _____	
	ii. _____	
	iii. _____	
3.	What is meant by continuity of evaluation? Discuss in detail	

2.5 Evaluation Models

Depending upon what is being evaluated, different kinds of data will be collected, different criteria will be applied to the data and different kinds of decisions will be made. But the basic evaluation process is the same and the same general concepts and principles of evaluation are acceptable. Probably the two most widely known and used models are DEM and CIPP.

2.5.1 Discrepancy Evaluation Model (DEM)

Discrepancy Evaluation Model (DEM) was developed by Provus. Under this model, evaluation basically involves making decisions based on a determination of the differences, or discrepancies, which exist between standards and actual performance. In other words, evaluation involves a comparison of the way things are, with how they should be. There is nothing wrong with either one of these models. If you followed one of them, or one of the many others available, you would have valid guidelines for conducting an evaluation. The point is, however, that all valid systems and models for evaluation involve the same essential components, namely: specification of goals and objectives; selection and/or development of measurement tools; delineation of strategies for objective attainment; process and product procedures; and analysis and interpretation of results. The term used to

describe these processes may vary and the level of specificity at which they are described may vary, but the basic processes are the same.

2.5.2 **Stufflebeam Model (CIPP)**

Stufflebeam, in a paper published in 1968, spelt out the need for evaluation to help in "planning", "programming", "implementing" and "recycling" decision. Concern for these led Stufflebeam to propose four types of evaluation, each particularly suited to his categorization of decision types:

1. Planning decisions would be best served by "context" evaluations which, by analyzing the situation and attempting to relate actual and desired conditions, would help to provide a rationale for objectives.
2. Programming decisions would be better served by "input" evaluations on the availability and use of resources and on such matters as the design of the programme.
3. Implementing decisions, as the name suggests, require the kind of information that indicates how things work and what might go wrong. This was called "process" evaluation.

C.I.P.P. became the short and familiar title of this context Input, Process and Product approach to the evaluation types.

Project evaluation, in general, may be delineated into four types, namely: context, input, process and product.

2.5.2.1 **Context evaluation**

Context evaluation serves decision making for the planning of an ongoing programme. In the continued planning of such a programme, decisions have to be made in the context of the programme's goals, the needs and target groups to be served by the programme and the behavioral objectives of the programme. Context evaluation is diagnostic in nature and attempts to discover any discrepancies between programme goals and objectives and the programme's actual impact so that planning decisions can be made or changed to produce greater correspondence between the intended and the actual outcomes. The end products of context evaluation are discrepancies between intended and actual outcomes.

This is the most basic type of evaluation. It has the following functions:

- Serves in the determination of objectives
- Describes the boundaries of the system to be evaluated
- Defines its relevant environment
- Delineates the actual and the desired conditions
- Identifies unmet needs and unused opportunities
- Diagnoses and analyzes problems
- Monitors the system to maintain a current baseline of information and provides a basis for widespread communication and control
- Looks for new emerging value

2.5.2.2 **Input evaluation**

Input evaluation serves decision making concerned with making the programme goals operational. In other words, input evaluation provides information about the means and available to reach the ends (programme

goals). It describes the resources available and determines the best use of those resources in terms of costs and benefits, resulting in a design to meet the goals. As a result of input evaluation, programme goals may be deemed unrealistic in terms of available resources; therefore, it may be necessary to redefine programme goals and objectives.

The purpose of this type of evaluation is to provide information for determining how to use resources to meet programme goals through identifying and assessing the following:

- Relevant capabilities of the responsible agency
- Strategies for achieving goals
- Designs for implementing selected strategy

It also provides information on whether outside assistance is required; how the objectives should be stated operationally; what strategy should be adopted and what operational plan should be employed to implement that strategy.

2.5.2.3 Process evaluation

Process evaluation serves the day-to-day decision-making needs required to carry out a programme. It provides feedback to the producers and managers of a programme so that they can monitor the operations and detect and predict potential programmes in design or implementation. The focus of process evaluation may include assessment of interpersonal relationship, logistics, and adequacy of staff performance and facilities.

A second function of process evaluation is to help programme directors made decision during the course of a programme. Long-term goals are usually specified before this stage is reached, but decisions leading to the implementation of long-term goals may have to be made during the programme itself. As an example, a programme may plan to use local people for in-service training sessions, but the actual choice of personnel, location of sessions and topics may have to be delayed until other aspects of the programme have been made final. Naturally, the clearer and more specific the input evaluation decisions, the easier will be the task of the process evaluation.

Another purpose of process evaluation is the recording of events through regular data collection, in this way project outcomes can be interpreted with a better understanding of what occurred during the programme period.

Once implementation has started, this type of evaluation comes in to provide feedback for the following:

Objectives

- To detect or predict defects in the procedural design in its implementation.
- To provide information for programmed decisions.
- To maintain a record of the procedure as it occurs.

Strategies:

- Identifying and monitoring continually the potential sources of failure in a project.

- Projecting and servicing programmed decisions to be made by project managers during the implementation of the project.
- Notifying the main features of the project design and describing what is actually taking place.

It is essential to have continuous feedback about the project so that process evaluation can perform a vital function. Information is delineated, obtained, and reported as often as required - daily, if necessary especially during the early stages of a project

2.5.2.4 Product evaluation

The purpose of product evaluation is to measure and interpret attainments not only at the end of a project cycle, but as often as necessary during the project term.

The consequences of a product evaluation may include decisions to terminate a programme to refine and continue it, or to modify it to some degree.

In Asia and the Pacific region, evaluation is built-in as one of the major activities of country projects in population education. However, the usual indicators of success are the project outputs, namely: (i) the variety and number of teacher's guides, supplementary readers, resource books, textbooks, field workers' manuals, posters, charts, slide and tape sets, etc. which are produced; and (ii) the number of educators given orientation, teachers and field workers trained, and the students and out-of-school youth and adults taught. In the chart below, emphasis has been placed on citing achievements regarding items in columns 2 (process) and 3(output). These are basically assessment of efforts and outputs vis-a-vis the evaluation of effects (column 4) and impact (column 5) of the programme.

As a summary, context evaluation determines the specifications for product evaluation, while input evaluation provides the specifications for process evaluation. However, operationalization by input evaluation for assessing the extent to which these criteria have been achieved are the bases for designing product evaluation. Product evaluation investigates the extent to which objectives are being attained. Process evaluation assesses the extent to which procedures are operated as intended. Both types provide feedback for control evolving change procedures in process. Product evaluation would go throughout, leading to a reformulation of the change to be brought about, modification either in strategy or procedure and termination of the change effort.

2.6 Characteristics of Project Evaluation

A good project evaluation should have the following characteristics:

- i. It should be realistic and relevant to decision-making, i.e. it takes into consideration the source of evaluation and brings out fully the implications to the decisions to be taken.
- ii. It visualizes both the immediate and long-term conditions of success.
- iii. It is credible (based in part on technical competence and in part on the evaluator's reputation for independent appraisal).
- iv. It is scientific (involving collection of facts and their systematic

interpretations).

- v. It is supported by qualitative analysis and full statistical information as a basis for modifying hypotheses.
- vi. It has healthy skepticism, i.e. all aspects of project appraisal have been looked into with specific expertise.
- vii. It is continuous and forward looking.

2.7 Steps in Designing the Project Evaluation

In designing project evaluation, care should be taken to include evaluation clauses followed by specific evaluation guidelines corresponding to the project's implementation (or experimentation) design. In each case the designer of a project's evaluation will have to improvise to a great extent. Nevertheless, the following general steps may provide guidance for the design of various types of project evaluation. This list is by no means a complete one and should, therefore, serve only as a suggestion.

2.7.1 Set the Boundaries of the "System"

The setting of the system's boundaries, i.e. the delineation of that part of the programme which will be subject to evaluation, is more the task of the administrator than that of the evaluator. This operation is particularly necessary when evaluating large and complex projects. The evaluator should, of course, assist in such work and together with the administrator arrive at some definitions meaningful to both of them.

2.7.2 Identify the Project Objectives:

The identification of project's objectives to be considered in evaluation is rather difficult when performed in a time remote from that of project's execution. The literature is full of examples indicating the almost impossible nature of identifying the project's objectives. If, however, provisions for project evaluation are made at an early stage, the project's objectives will be more easily identified.

2.7.3 Identify the Evaluation Objectives:

This is another important consideration as well as a source of inevitable conflict between the evaluator, the administrator and the policy-makers affected. There are two possible approaches of summative evaluation corresponding to two different evaluation objectives. The tailored evaluation which refers to evaluation where the outcome measures have been uniquely developed to fit behavioural objectives or actual inputs that can be specified for a particular social programme. This type of evaluation is usually preferred by project managers who care only about the effectiveness of their programmes and do not really care about other outcomes such as unintended effects.

Policy-makers, however, seem to take a broader view of the objectives of the evaluation. They wish to see the project being evaluated from several viewpoints to account, for example, for side-effects, long-term effects, etc. In such a case, the medical model of summative evaluation seems to be more appropriate. Based on a tradition in medical research the medical model has, four dimensions: The first involves the evaluation of the curative potentialities of a drug and/or a therapeutic technique. This coincides with the effect of the tailored model. The second dimension refers to side-effects, especially those which have not been anticipated.

The third dimension relates to generalized positive effects beyond the intended one. The final dimension pertains to the duration of the project's effect.

The above suggests that the evaluation objectives which may go beyond the specific goals of the project have to be set well in advance and be incorporated into the evaluation design.

2.7.4 Break-down the Project into Meaningful Components, Activities, etc.

This is an important operation, especially in system's performances evaluation or evaluation of large and complex projects. It may be desirable to perform the evaluation of only one component of the project or one of the system's subsystem. In such cases, the way the system or programme is broken down plays a crucial role in the success of the evaluation effort. This discomposition can be made by following either a structural or a functional approach. Structurally, a programme or system can be separated into geographical or administrative units, etc. Functionally, it can be split up by means of its various processes such as teaching/learning in an educational system.

2.7.5 Identify the Goals of Each of the Identified Components:

It is evident that the goals of the programme's components or the system's sub-system will differ from those of the entire programme or system. It will be necessary, however, to establish a meaningful relationship between the goals of the system and those of its sub-systems. This relationship is usually in a means-end sequence.

2.7.6 Identify the Relationship Existing Among the Various Components:

Care should also be taken in identifying the existing relationships between the components and elements of a programme or a system in order to identify those which are more affected by the project's effects. If the outcomes of the project will have an effect on previous relationships this should be detected in advance to avoid negative repercussions. An example could be that of a teaching innovation affecting the existing power structure in the classroom or the school. In such a case, the introduction of this innovation (i.e. the project) might fail if the appropriate measures are not previewed.

2.7.7 Identify the Inputs and Outputs of the System and of its Components:

The identification of the inputs which produce a particular output (or outcome) is apparently a very important exercise. Very often, bad evaluation results may be due to insufficient inputs used either for the evaluation itself or in the project's implementation.

2.7.8 Identify the Most Important Processes to be Considered:

It may not always be necessary to evaluate all the processes or activities to arrive at meaningful evaluation results. There may, therefore, be a need for selecting those which, to the evaluators, are the most important. For example, in an education system one could identify the following processes: teaching-learning, evaluation, financing, staffing, etc. Which of these should the valuator consider when evaluating the programme.

2.7.9 Identify the Appropriate Evaluation Techniques:

It may be necessary that the evaluation techniques to be employed for evaluating the project's effect be incorporated into the evaluation design. This will facilitate the role of the designer responsible for project evaluation. It should, however, have enough flexibility for the administrator to consider the views of the evaluator. The

identification of the evaluation techniques at an early stage will certainly facilitate the costing of the evaluation exercise by considering such problems as availability of data and data-gathering techniques, etc.

2.7.10 Set the Appropriate Evaluation Criteria:

Project goals usually serve as evaluative criteria, but very often objectives and goals are not directly measurable. Therefore, there will always be a need to set up some proxies for objectives and goals along the lines discussed earlier. Most of these criteria may be incorporated into the evaluation design.

2.7.11 Describe the Reporting System:

The evaluation effort will be useless unless its findings are reported in time and in a comprehensive form to the decision-makers. This directly suggests the evaluation design should prescribe the ways and means for communicating the information selected, as precisely as possible, especially in the absence of an internal organizational information system.

2.7.12 Estimate the Project's Evaluation and Cost of Evaluation:

There are, obviously, two fundamental exercises which have to be undertaken at the project design stage. If there are indications that either the evaluability of the project is doubtful or the probable evaluation cost risk being very high, then there may not be a project evaluation.

Monitoring and evaluation are essential elements in the planning and implementation of any programme to ensure that the programme is attaining its objectives as efficiently and as economically as possible without any undesirable side effects.

2.8 Evaluation Framework

Figure 3 is a simple model for the evaluation of population education programme. It shows that resources (inputs) are assembled and combined in various ways (processes) to produce goods and services (outputs). The intent of most programmes is that these goods and services will have some effect on people, i.e. changes in their awareness, knowledge, attitudes (primary effects), changes in their behaviour and changes in conditions or levels of living (status changes) such as fertility or economic levels. Programme evaluation may consider some or many of these elements, singly or in combination. The evaluation findings should then be useful for revising or planning the programme.

The following are the major parts of the evaluation framework:

2.8.1 Identification of programme objectives to be evaluated

2.8.1.1 Objectives: Which objectives are to be evaluated?

- i. Outputs
 - goods: teaching-learning materials training packages, audio-visual kits,
 - services: training courses, etc.
- ii. Primary effects
 - Changes in awareness: awareness of problems related to population, resources, development, quality of life, etc.
 - Changes in knowledge: understanding of interrelationship between population change and different aspects of quality of

- life, reproductive physiology, population dynamics.
- Changes in attitudes: feelings about family size, population issues, etc.
- Planning and management skills: planning a family, management of resources, etc.
- iii. Changes in Behaviour
 - acceptance: acceptance of small family norm, new values, adoption of new training techniques, etc.
 - practice: continuity of behaviour changes
- iv. Status changes
 - fertility level changes: prevention of pregnancy, changes in birth rates, etc.
 - quality of life level changes: improvement of the "quality of life" such as health, income, etc.

Programme objectives may be very modest or they may be ambitious. If they can be stated explicitly, they should fall into one of the four categories listed above. Output objectives are the most modest and the easiest to measure. They relate to the primary results of programme efforts: goods and services provided. Primary effect refer to changes in awareness, knowledge or attitudes. Behavioural change objectives are more ambitious and more difficult to measure. Status change objectives are very ambitious and very difficult to relate to programme efforts. The following may be of value in relation to the evaluation of a programme.

2.8.1.2 Targets: When target group/s of the programme are to be included in the evaluation?

2.8.1.3 Timing: When are the expected changes to take place? When should evaluation be conducted?

2.8.1.4 Magnitude and duration: What is the magnitude or scope of changes and how long are they supposed to persist?

3.8.2 Selection of programme activities and content to be evaluated.

3.8.2.1 Scope of evaluation: which agencies and programmes are to be included in the evaluation?

3.8.2.2 Content of the evaluation: what components of the programme are to be evaluated?

3.8.2.3 Inputs: Which resource inputs are to be evaluated?

3.8.2.4 Activities: Which programme activities (processes) are to be evaluated?

3.8.3 Selection of the evaluation design and methodology.

Decision with regard to:

- i) Study design; (b) Sample; (c) Measurement instrument; and (d) Data collection and analysis.

SELF - ASSESSMENT TEST IV

1. Here are some statements. Tick the letter T if the true. If the statement is False then tick "F".

T	F	Discrepancy Evaluation Model (DEM) was developed by Stufflebeam
T	F	Context evaluation is concerned with the decision making for the planning of an ongoing programme.
T	F	Project evaluation is a continuous and forward looking process.
T	F	There are eight steps discussed in this unit for designing the project evaluation.
T	F	Identification of programme objectives to be evaluated is a major part of evaluation.
2. CCIP stands for:

C	_____
I	_____
P	_____
P	_____
3. Briefly explain the evaluation framework.

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4. KEY TO SELF-ASSESSMENT TESTS

TEST I

1. T F T F T
2. i. Financial
ii. Administrative
iii. Academic or Technical
iv. Physical
3. See answer from the text

TEST II

1. T F T F T
2. i. PERT
ii. CPM
3. See answer from the text

TEST III

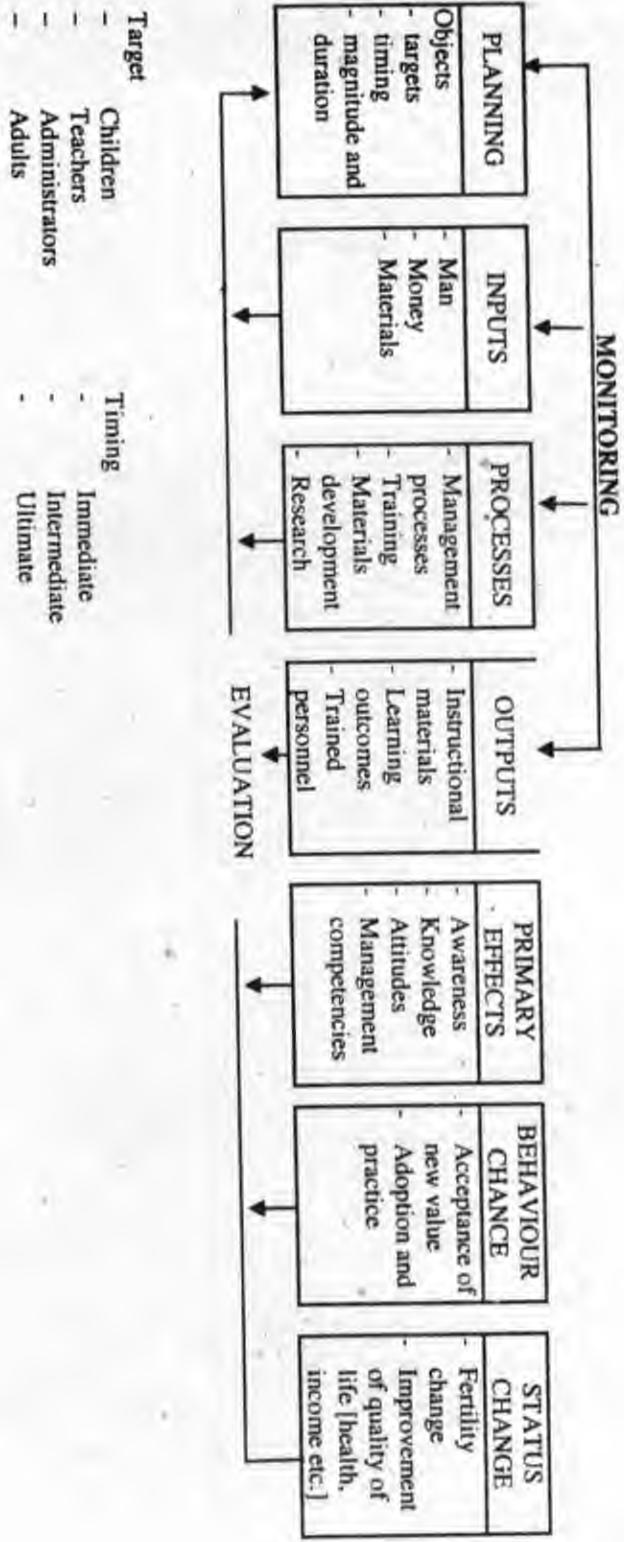
1. T F F T T
2. i. Feasibility
ii. Concurrent
iii. Final
3. See answer from the text

TEST IV

1. F T T F T
2. C Context
I Input
P Process
P Product
3. See answer from the test.

MODE FOR MONITORING AND EVALUATION OF POPULATION EDUCATION PROGRAMMES:

Figure 1:



THE CONTEXT INPUT PROCESS PRODUCT (CIPP) EVALUATION MODEL

Figure. 2

	Context Evaluation	Input Evaluation	Process Evaluation	Product Evaluation
Objectives	To define the operationalized context to identify and access the need in the context and to identify and delineate problems underlying the needs	To identify and assess system capabilities, available input strategies and designs for implementing the strategies	To identify or predict in process, defects in the procedural design or its implementation and to maintain a record of procedural events and activities	To relate outcome information to objectives and to context input and process information
Methods	By describing individually and in relevant perspective two major sub-system of the context, by comparing actual and intended inputs and outputs of the sub-system and by analyzing possible courses of discrepancies between action and intent	By describing and analyzing available human and material resources, solution strategies and procedural designs for relevance, feasibility, and action to be taken	By monitoring the activity's potential and procedural barriers and remaining alert to un-anticipated ones.	By defining operationally and measuring criteria associated with the objectives, by comparing these measurements with predetermined standards on a comparative basis, and by interpreting the outcome in terms of recorded income and process information
Rotation to decision making in the change process	For deciding upon the setting to be saved, the goals associated with meeting needs, and the objectives associated with solving problems i.e. for planning needed changes	For selecting sources of support, solution strategies and procedural designs. i.e. for programming change activities.	For implementing and refining the programme design and procedure. i.e. for effecting process control	For deciding to continue terminate modify or refocus a change activity to other major phases of the change process, i.e. for evaluating change activities.

Source: Daniel Stufflebeam, *Evaluation as Enlightenment for Decision-Making, 1968, P34.*

EVALUATION OF POPULATION EDUCATION PROGRAMME: A SYSTEM APPROACH

Figure: 3

1	2	3	4	5
INPUT	PROCESS	OUTPUT	EFFECT	IMPACT
Professional expertise of staff	Planning and management	National/Regional plans/projects	Planning management competent	Fertility behaviour
Administrative support staff	Curriculum and materials development	Curricula materials developed	Knowledge and attitude of officials	Economic status
Government Budget	Training	School officials/ teachers other personnel trained	Knowledge, attitudes, skills (Teaching learning of trainees and teachers	Other changes In quality of life
UNFPA funding support	Research and evaluation	Completed researches	Knowledge, attitudes, practice skills of students and field workers	
Other Funding				
Unesco's Technical Assistance	Documentation	Materials, collected, analyzed and disseminated	Knowledge attitude, and skills of curriculum writers	

UNIT 5

IMPACTS OF POPULATION EDUCATION ON SOCIAL SYSTEMS

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INTRODUCTION

The social structure and value systems of societies have an important bearing on the fertility levels of their people. Studies regarding impact of social factors on fertility have shown that certain factors promote the attainment and maintenance of high fertility levels, whereas others try to keep it low.

Social demography is concerned with relationship between social and demographic phenomenon. It would be recognized that all demographic processes take place within an influencing social context. Most of the demographic theories are basically dependent upon sociological theories. Structural functional approach of Wilbert Moor⁽¹⁾ in sociology offers one of the most promising frameworks for the development of social demographic theory in that it explicitly brings demographic variables into the scheme of sociological theory. Kingsley Davis holds that demographic changes are both "reflexive" and "behavioral"⁽²⁾. They are reflexive in that they affect other components of a social system. They are behavioural in that they are effected by the various subsystems of a social system. Freedman derived a systematic model of social factors that affect fertility⁽³⁾. T.V. Ryabushkin aptly remarked in "social aspects of population structure and Movements" that "Every Social System has its own Concrete laws of population"⁽⁴⁾. The General purpose of this unit is to help the students understand, the impact of those components of social systems that influence fertility in South Asian Countries.

OBJECTIVES

To help students understand:

1. Relationship between social system and population.
2. The components of a social system.
3. Analyse that how the various components of a social system affect the population growth in a society.
4. Growth trends in population of South Asian Countries with reference to their social systems.
5. That population explosion is imbalancing the social system in South Asian Countries.
6. That by bringing positive changes in different parameters of social systems of South Asian Countries, we can overcome the problems of population increase.

1. SOCIAL SYSTEM

"System" is a concept that refers both to a complex of interdependencies between parts, components and processes that involves discernible regularities of relationship and to a similar type of interdependency between such a complex and its surrounding environment⁽⁵⁾. Systems, in this sense, is, therefore, the concept around which all sophisticated theory in conceptually generalizing disciplines and must be organized. This is because any relationship among parts of a system can be adequately understood if the whole complex of multiple interdependencies within a system is taken into account.

In pursuing the study of population, the sociologist often uses the term social system. This idea emphasizes the interdependence of social phenomena. Separate social facts or units are studied as parts of larger, interconnected wholes.

The concept of social system is useful for two reasons. Firstly, it encourages a contextual view of individual and group behaviour. Decisions and activities are seen in context, that is, as conditioned by the social situation.

Second, the idea of social system invites attention to relationships that are not ordinarily visible and for which, there are no common sense names. For example, the interdependence of police and informers constitutes a social system.

Social systems may be smaller or large, stable or unstable. The idea of system encourage the analyst to look for context and connections; it does not tell him what he will find. It cannot be known in advance whether systematic connections will be found or, if they are discovered, how stable they may be. Indeed the most important thing about a system may be its internal stresses and tensions, that is, the sources of instability that are breaking it down or changing it into something else.

Some sociologists avoid the term social system because it seems to them that it cannot be too great an intellectual concern for integration or stability, or an unwarranted prejudgment about the existence of stable systems. The main components of social system which may have strong bearing upon population may include attitudes and values, customs and traditions, education, life style of population, recreation modes, income, working hours, ideology, religion, philosophy or belief, morality and ethics, profession, social class, climatic conditions, urbanization and so on.

2. IMPACT OF COMPONENTS OF SOCIAL SYSTEM ON POPULATION

There are a number of components of a social system, which affect population growth and fertility. In the following paragraphs, an attempt will be made to understand the impact of various components of a social system on population growth with special reference to different countries of South Africa.

2.1 Religion, Ideologies, Beliefs etc.

Most social scientists would agree that religion is one of the influential institutions in a society and that religious affiliation is an important social characteristic in differentiating human behaviour. Indeed, several generations of sociologists have been interested in the influence of religion on a wide range of human behaviour and in very recent years the scientific study of religion has increased dramatically.

The demographic perspective has numerous points of contact with religious factors. A current topic of interest is the relationship between religious beliefs and family size.

So far the religious or ideological scene of South Asian Countries is concerned, Islam, Buddhism, Hinduism, Christianity and Parsism are main religious or

ideologies of the inhabitants of this region. Islam is dominant religion in Pakistan, Bangladesh and Maldives; and Hinduism, Buddhism and Parsism in India, Sri Lanka and Bhutan.

The major religions of South Asian region do not contain explicit ideologies with respect to fertility. Traditional belief of most of the people living in this region are pro-fertility. For example when a Brahmin bride bows to her elders, the traditional blessing is "Be the mother of eight sons and may your husband live long". In Pakistan, children are referred to as the blessings of God".

One verse of the Quran on methods of fertility control is not specific and is subject to various interpretations. One verse of the Quran reads, "And do not slay your children for fear of poverty. We give them sustenance and yourselves, too".⁽¹⁶⁾ Some authorities interpret this ban to include prospective children as well as infants already born. On the other hand, one authoritative Islamic stance given by His Excellency Ayatollah is that from the standpoint of the divine law, the use of drugs or contraceptive fertility does not seem to be illicit of this practice does not damage the female's fecundity and make her barren".⁽¹⁷⁾

Parsis, from religious point of view, are less reproductive as compared to Muslims, Hindus and Buddhists. Even the ethnocentric values have not influenced them to become more prolific in reproductive behaviour.

So far as the religion of Christianity is concerned, Catholics are against birth control and until recently, governments of many Catholic Countries refused to participate in birth control programmes.⁽¹⁸⁾ Catholics have similar view points as those of protestants, both denounce the population control. However, protestants are less antagonistic towards the family planning and prefer to have smaller families. The catholic religion strongly and explicitly condemns most forms of the birth control.

From the above discussion it is desirable that the agencies working for the population control, welfare and education in this region must take into confidence and involve the religious leaders, philosophers and common unity leaders of the region. They should be required to give possible legitimate new interpretations of the religious truth to curb the population explosion in the light of contemporary circumstances. Religious leaders can mentally prepare the populace in this direction.

2.2 Customs, Traditions, Values and Attitudes

Customs, traditions, values and attitudes prevalent in a social system also have a demographic effect. For example, in a society where joint family is a rule, not only the marriages are arranged by the family but also the sexual behaviour of the individual is very much influenced by his membership in the joint family. To have a child soon after marriage is anxiously desired in such families. The birth of a child is always welcomed, particularly so if it is a boy, for he adds to the strength of the family and its prestige.

Following social values and attitudes of people living in the South Asian region are stated to have a substantial effect on fertility and population growth:-

2.2.1 Desire for a son

Desire for a son is a universal phenomenon and is particularly strong in the feudal and tribal societies of South Asian Countries. Son preference automatically increases the number of children the women bear. Son preference is more pronounced amongst men than women. The women who produces a series of daughters, is often rejected, although it is an accepted genetic fact that it is man who delivers the sex of child. However, it is also true that women gets recognition in family after the birth of a son.

Son preference affects family size to a considerable extent. A large number of couples in this region usually go on trying until they have a son. One can even observe that a family with seven or eight daughters will still go on trying for a son. This attitude offers a challenge for population education. People must be educated positively so as to eradicate this attitude of son preference from their minds and behaviours. Educating the masses by slogans like "daughter is gift of God Almighty" through mass media, as it is being done by Pakistan Television now-a-days, may contribute a lot in this direction.

2.2.2 To Carry the Family Name

This is an important social requirement which is expected from the newly married couples. It is not only a psychological and sociological compulsion, but it makes good economic sense as well. Traditionally, the son inherits not only the name of his father but all his property and belongings. Not to have at least one son would mean losing all the property to other people or families. To carry the family name is also related to the status of women in society, she has very limited property rights in terms of inheritance. The demand for at least one son per couple is deeply rooted in our value system, and will remain latent in the fertility behaviour in our region. In wealthy families, demand for carrying the name may be higher than in poor families.

2.2.3 Virility and Sterility

In developing societies such as Pakistan, one of the social requirements is that a man must prove that he is potent and procreate at will. The pressure on the male is great, because the society has established that to procreate is not only normal but desirable. The pressure upon a female is ever greater because of her status in the household and society. To be 'sterile' for a woman is probably worse than to be 'untouchable'.⁽²¹⁾ In Muslim societies, for a female not to be able to bear children may increase the incidence of bigamy or polygamy.

2.2.4 Established Power Structure

The male numerical strength of a household, family caste or a Braderi is extremely important in settling disputes in developing societies of South Asian Countries. The disputes related to property or land, monetary or financial matters and conflicts arising from social, cultural or religious differences are usually settled in accordance with the norms of the established power structure which is well defined and highly visible in the rural areas. However, power structure is less visible but established and

effective in urban communities in form of "Baraderi" System. Other than the economic power, the male numerical strength is the most important determinant of the power structure.

The important role of this male numerical strength is directly related to the relatively weak administrative and judicial system that exists in the most of the developing societies. In such countries, the law enforcing agencies and governmental administrative machinery are basically the custodian of the rights of the elite of the society. Therefore, the population belonging to lower economic strata does not rely upon the law enforcing agencies for the protection of its rights or seek justice by the due process of law.

Thus, the demand for male members needed to enhance the numerical strength of a household seems to be an important determinant of fertility for South Asian Countries.

2.2.5 Social Security for Parents in Old Age

Social-cultural values and attitudes towards parents and old people in the societies of South Asian Region are another matter of great concern for both the social scientists and demographers of this region. Large number of successful children are always a source of great sense of achievement for parents in old age. Generally speaking, the old parents are the traditional responsibility of the boys (sometimes shared and assumed by daughters also) in the family.

It is generally accepted that in South Asian societies, where the costs of rearing children are extremely low and the benefits from them are high, it makes economic sense for parents to have many children. In South Asia, nearly 90 percent of parents rely on their children to support them in their old age. For most, immediate cost of raising children is minimal comparing their need for support in old age. Thus children seem to be the best possible annuity. For women, the compulsion is even greater, because they, more so than men, look to children for support in old age, sickness, divorce, separation, illness of husband and widowhood. Further, the present status of women in developing societies, which is extremely low, dictates less opportunities for education and employment. The traditions and customs are biased against women in protecting their rights concerning inheritance, marriage, divorce and property. Thus women seek obvious insurance against the risk to have several children (in particular, sons). Such social set up is most likely to raise fertility. Men seem to have similar compulsions for social security at old age, insurance against incapacitating sickness. But his desire to have more children (or sons) may be more influenced by the other determinants, such as to enhance male numerical strength of a family, to combat insecurity and lawlessness, or to capture his economic share resulting from the existence of unequal distribution of wealth and unequal opportunities for progress.

2.3 Social Facilities of Life

Non-Provision of better facilities for life to masses has also an alarming effect on population growth of the South Asian Countries. The available evidence, though unfortunately limited, shows that people enjoying the better facilities of life, good

housing, better health facilities, lighting facilities etc. have smaller families as compared to those who do not have adequate social facilities of life. Viscount Soulbury, Ceylon's former Governor General once said "He who goes to bed early to save candles begets twins"⁽²³⁾. He advised his Prime Minister, to introduce electric lighting to the villages to counter the population rise. In an opening speech to an international planned parenthood conference, late Prime Minister of India Nehru announced "I was told only today about the possible consequences of, let us say, electricity going to rural areas... the period for which they can work or amuse themselves or do other things is enormously lengthened and thereby, indirectly perhaps, it affects the family planning business".⁽²⁵⁾ It has been proved through different population studies of the region, and one can observe also, that people living in slums, congested houses, and in rural areas usually have more children as compared to the persons living in posh areas having excess to every facility including luxuries.

2.4 Recreation or Modes of Enjoyment

A large variety of researches conducted in the field of demography indicate that one of the dominant social factor for the large families of poor and lower class people is lack of desired recreation and entertainment modes available to them. They find their spouse as the sole source of entertainment, enjoyment and recreation tempting to high sexual frequency with spouse which proves to be an antecedent to increased fertility. The entire complex may be expressed in a saying "procreation is the poor man's recreation". A Vice President of India once publically commented that "Sex is the only indoor sport open to us, and large families are produced because of it. It is the poor people that produce large families and not rich ones."⁽²⁶⁾ Provision of mass scale recreational facilities and sports activities for poor people in the South Asian Countries may be the suitable solution of the problem. There is a notion in the west that night baseball may substitute the sex. Educating the poor people in manner which will enable them to sublime their sexual urge into channels of such activities which are productive for the community may serve as another alternative in this regard.

2.5 Social Class / Social Status

Irrespective of other variables, differential rates of births have been calculated in each region of world with respect to social class as measured by education, occupation, income or combination of these factors. Upper social class has smaller families as compared to middle class which in turn has smaller families in comparison to lower class people. This is probably due to higher education, better income and white collar occupation of the upper class. It is usually argued that the lower social classes want to have many children or they do not care how many they have. In the face of such values and biological drives, birth control programmes are doomed to failure, and might even increase to immortality of these classes. Large families are the desired state of affair with lower classes.

2.6 Education

Education, as a social factor, plays a vital role to curb the populating growth. Education and specially the higher education usually associated with decline in number of children desired. This more effective when husband and wife both are educated, specifically highly educated. Educated persons usually desire and have small families mainly on account of following three reasons.

1. An educated public is health conscious. Through newspapers, magazines and other mass media, the educated populace become convinced to have smaller families keeping in view the future economic and health needs of the children.
2. Among educated populace, marriage is usually delayed and this usually results in low fertility rate.
3. Educated people are usually not traditionalists. They become convinced from the programmes of population welfare agencies, and they do not hesitate to use birth control measures especially when their number of children expected increase from three or four.

2.7 Income

It is how a well established fact that people with more income usually want fewer children and vice versa. It must be mentioned here that the classical economists like Adam Smith and demographers like David Mc Clelland are of the view that economic growth leads to population growth. But this theory was put forward at a time when population increase and economic growth were moving forward side by side. But low of plausible correlation seems to reflect a reverse law of human behaviour, rising income and wealth is associated with declining birth rates. This is not only true for individuals but nations also. It has been observed that developed countries with greater wealth have lower birth rates.

2.8 Distribution of Wealth and Unequal Opportunities

The pattern of distribution of wealth in the South Asian Countries provides unequal opportunities for economic progress for the majority of the population. Thus, a common person sees little opportunity to fulfill his innate desire to be well off and accumulate wealth by himself. Therefore, he substitutes children for wealth. His strategy is quite simple. It costs him very little to be a father and he would raise them by whatever means available to him in his social set up. He sees his children as helping hands or income earners. He rationalizes, unconsciously, that when he has a lot of children, only then he will be able to accumulate wealth. Or at least, he will be able to raise his standard of living and consequently his status in the community. Clearly, more children seem a good way of getting rich and raising one's status in the society. Thus, inequality in the distribution of wealth and the difference in the levels of living of the rich and poor, aggravated by the unequal opportunities for economic progress for different classes of the society, seem to effect the demand for children and the fertility in developing societies.

2.9 Occupation or Profession

Fertility and occupations are highly associated. If we compare the change in birth rates by occupational categories, we note distinct patterns of families for different occupational groups. According to the various researches in the field, persons with white collar jobs have relatively small families while unskilled labourers (the lowest category in occupational pyramid) usually have larger families. Semiskilled and skilled workers have average families.

Differentiating patterns of families of white collar job holders and of the unskilled labourers is probably the effect of education, recreation, modes and income of the persons holding these occupations. Further, education of wives of the persons in upper categories profession also seems to be a factor for their small family size.

2.10 Education, Employment and Status of Women

Several studies have shown that fertility is inversely correlated to education and employment of women. Perhaps the most important reason is the diversification in the activities of educated or employed women. Education of women in Pakistan and Bangladesh is known to decisively decrease fertility.

The employment of women outside the home constitutes one of the most likely factors of a desire for small families. Such employment often entails satisfactions alternative children (because of availability of companionship, recreation, stimulation and creative activity), or the means to such satisfactions in the form of financial remuneration. Increasing trend of working wives in South Asian Countries may be helpful to decrease the birth rates to some extent.

Closely associated with the employment of women is the issue of status of women. The South Asian women particularly those belonging to feudal families gain real acceptance only after the birth of a child and in most cases with the birth of a male child. A lot of girls of rural areas suffer from deprivation and lack of exposure to any information on matters outside the home. Women's right to inheritance and possession is almost completely denied to her and the worst part of it is that she has been trained to believe that her greatness lies in surrendering her legal right to inherit from her parents property. The woman, even an educated urban woman, is, sometimes, not permitted to participate in decision making in either the family or the community. Her low socioeconomic status caused by such social traditions and attitude towards financial matters coupled with the lack of education and exposure has created a deep sense of insecurity among woman folk of the region.

It can be concluded that by educating women and safeguarding their employment and giving them their due status in the society may be much helpful in decreasing the size of the family in the South-Asian Region.

2.11 Marriage

Marriage is considered as an obligatory social duty of every man and women in almost all the countries of South Asian region. Not only this but marriage is also presumed beneficial to emotional health and offers the advantage of family care to a spouse in case of illness and in old age. Marriage at early age is preferred and postponement of marriage specially that of a girl is hated by the established social norms. This causes automatically the possibility of greater number of births due to the greater number of marital years. The number of children of a woman goes on decreasing as the age at marriage increases. A shift to later age for marriage, other things equal, independently brings a reduction in fertility. According to the findings of the researches conducted in this respect, the proportion of childless wives mounted very rapidly as age at marriage increased. Results of different studies also indicate that women who were married between the ages of 35-39, have some impairment of fecundity of whom one half are definitely sterile.

2.12 Race

Race is a most ambiguous, controversial and explosive concept the world over. It is also one of the major demographic variable. From biological point of view, racial identity is a physical fact that neither the individuals nor society can alter. It is a matter of biological inheritance. In South Asian Countries, the proportion of populations belonging to different races and racial groups is very important, especially from political point of view. Tribal races in the region usually intend to have more children because of their existence as a tribe or race. Tamils in India and Sri Lanka, Pathans and Mohajirs in Pakistan (Muslims migrated from India to Pakistan 1947) , and Nepalese in Bhutan usually desire to have greater number of children because of specific reasons.

2.13 Urbanization

Irrespective of other factors, urban fertility in the South Asian countries, like whole of the world, has always been lower than the rural. Very often, the decline in the birth rate was the greatest in the big cities. It has been pointed out that urban living conditions favour smaller families in a number of ways. City apartments apparently permit expansion less comfortably than joint family house (Havilis), typical of villages and farms. Children are more expensive to rear when every thing has to be bought from the markets. In rural areas, minors help their parents from a very young age, whereas under urban conditions, parents get no financial return on their investment in the offspring. In urban areas and cities, women are more likely to find alternative roles to being a house wife and thus to postpone procreation, or even to put it off altogether. Perhaps non-marriage occurs more in urban areas because these areas depend less upon kinship and the family as basis of social organization.

In rural areas, where the family is a productive unit, marriage is a high value for the individual. The postponement of marriage is a social trait of urban areas of the region. The necessity of lengthy training for skilled positions in the urban society and the necessity of economic self sufficiency on the part of newly married couple

lead to marriage postponement. Further more, family life is less cohesive and plays smaller role in the city. The urban adult tends to be involved in a broad range of outside interests and activities that draw him away from home. A large family would interfere with these urban pursuits. In judging the probable weight of these factors, it is easily understandable that why the birth rates of urban areas are less than rural areas.

Insecurity and Lawlessness

Another factor that seems to promote higher fertility is related to the general law and order conditions prevalent in the developing societies. The general lawlessness in a community, which produces a feeling of threat to life and property of the common citizenry, may induce common man to adopt private means for self protection. Most of the population in the developing countries have very little faith in their police, law and justice systems. The escalating rates of crimes; such as armed robberies, theft, murder, kidnap, narcotics and violence, creates a general feeling of insecurity among the members of community. The persistent feelings of insecurity for long durations, causes the psychic mechanism of people to click them to have larger families. Unconsciously, many people may see a large family as a compensation for the lack of police protection and non-availability of justice.

Political Ideology

Throughout the world, it is common that the individuals, groups and governments having a belief in nationalism tend to favour procreation. On the other hand, those holding the political ideology of capitalism and democracy are usually in favour of family planning. This is because the nationalists, Marxists and socialists believe that a large population is, probably, a necessary condition of power and development. To them giant armies and industries both require large population bases, and total national product of a nation is greatly influenced by the sheer weight of numbers. Luckily, in South Asian countries there are not too many individuals or groups who hold the political philosophy of Nationalism and Marxisms. Hence, this factor has not been so much effective in population growth of the region.

Modernization

Everywhere in the world, modernization has had an abiding and drastically downward effect on family size desire. Modern people prefer small families because of a shift in age at marriage, changes in patterns of child earning and mental acceptance for the use of contraceptive techniques for birth control. Modernization also provides the sources of satisfaction to the people in general, which prove to be as alternatives and substitutes to the marital sexual satisfaction.

3. CONCLUSION AND SUGGESTIONS

Social system and its components have a strong bearing upon fertility and every social system has its own concrete laws of population. A better understanding of population composition and changes may be expected various components of social system. A handful of research studies have been conducted on the interrelationships in the South Asian Region.

These views theories and research studies indicate that social factors like religion, law, income, lower social class, low literacy rate, lack of recreation and modes of enjoyment, non-availability of facilities of life, early marriage age, insecurity and lawlessness, desire for a son, unequal opportunities and joint family system are the main causes of increasing birth rates in the region. On the other hand, reverse of these factors along with urbanization, modernization, education and employment of women and democracy, as political ideology, are among the social factors which cause a decline in the birth rates. This may lead us to suggest that if the societies of the South Asian countries are serious in curbing the population explosion in the region then they should:

- i) Educate their populace to the maximum possible extent with at least target of 5% increase in literacy rate per year.
- ii) Minimize the gap between the social classes.
- iii) Provide the recreational and other facilities of life to lower classes.
- iv) Give special attention to the education and employment of women between social system and population change.
- v) Give the women their due status in the society.
- vi) Eradicate the sense of insecurity from the minds of persons by controlling the lawlessness generally prevailing in the society.
- vii) Promoting democracy in the society.
- viii) Educating the people to have smaller families for better national future.

It can be further concluded that the institutional frame of reference is the major factor influencing fertility behavior in our region especially in Pakistan and Bangladesh. Empirical studies completed in the neighboring India and Bangladesh, show a significant and consistent relationship between fertility and social determinants. Fertility which is accepted to be based upon interrelationship between the individual decision process and his social frame of reference, seems to be floating upon a flux of many parameters, variables and unknowns. For different South Asian Countries these social determinants are different and they seem to be influencing fertility with varying degree in different stages of development of a specific country. Though the impact of social system is significant on population trends, however, we should take care not to overemphasize any particular trait or social characteristics when classifying the people in a specific society for demographic purposes.

4. SELF ASSESSMENT QUESTIONS

Q.1 Each statement/explanation given below provides the description of a specific concept discussed in the unit. Write down the specific term of that concept of which the description most appropriately is associated in the space provided in the beginning of the description.

1. _____ it is well defined and highly visible in rural areas. It is less visible but established and effective in urban communities in the form of "Bradari System".
2. _____ is the poor man's recreation.
3. _____ is considered as an obligatory social duty of every man and woman in almost all the countries of South Asian Region.
4. _____ is a physical fact that neither the individuals nor society can alter, it is a matter of biological inheritance.
5. _____ is the concept that refers both to a complex of interdependencies between parts, components and processes that involve discernible regularities of relationship.
6. _____ may be conceived as consisting of two facts, demographic analysis and population studies.
7. _____ it emphasizes the interdependence of social phenomenon. It may be small or large stable or unstable. In it social facts or units are studied as parts of larger, interconnected whole.

Q.2 Fill in the blank with most appropriate words / figures.

1. Social system encourages a contextual view of individual and group _____.
2. The average family size of persons with white collar jobs in urban areas in the South Asian Countries is _____.
3. The South Asian Woman particularly one belonging to _____ family gains real acceptance only after the birth of a child and in most cases with the birth of a male child.
4. There is a notion in the West that _____ may substitute the sex.
5. Large families is the desired state of affairs with _____ classes.
6. Delayed marriage usually results in _____ fertility rate.
7. Results of different studies indicate that women who were married between the ages of 35-39 had some impairment of _____.
8. In rural areas where the family is a productive unit _____ is a high value for the individual.
9. Number of days of sexual abstinence for religious reasons mentioned by the individuals in Mysore (India) ranged from _____ to _____.
10. Catholics have similar view points as those of _____ both denounce the population control.
11. The demand for at least one son per couple is deeply rooted in our value system, and will remain latent in the _____ behaviour in our region.

12. In societies such as Pakistan to be sterile for a women is worse that to be _____.
13. Large number of successful children are always a source of great sense of achievement for _____ in old age.
14. Old parents are traditionally the responsibility of _____ in the family.

Q.3 In the questions given below, four probable answers have been provided and only one is the correct answer. Encircle the correct answer.

1. Close affinity between sociology and demography is largely a product of the last.
 - a) One to two decades.
 - b) Two to three decades.
 - c) Three to four decades.
 - d) Four to five decades.
2. Who stresses functional theory in sociology as most relevant to demography and envisages population as an endogenous variable in the analysis of social system.
 - a) Duncan
 - b) Freedman
 - c) Kingsley Davis
 - d) Moore
3. The majority of least educated monks and priests of Buddhism.
 - a) Say nothing directly upon the subject of contraception.
 - b) Consider use of contraception for birth control as fruitful.
 - c) Usually assert that preventing the birth willfully tantamount to killing.
 - d) Consider preventing the conception as un-natural and sinful.
4. From religious point of view which one of the following are less reproductive.
 - a) Muslims
 - b) Hindus
 - c) Buddhs
 - d) Parsis
5. According to genetic facts who delivers sex to the child.
 - a) Man
 - b) Woman
 - c) Both man and woman
 - d) Nature
6. Who is of the view that demographic changes are both reflexive and behavioural.
 - a) T.V. Ryabushkin
 - b) Wilber Moore
 - c) Kingsley Davis
 - d) Freedman
7. The average family size of the skilled labourers in Urban areas of South Asian Countries is
 - a) 3.5
 - b) 4.1
 - c) 5.2
 - d) 5.4

8. In the light of findings of various researches conducted in connection with the relationship of fertility rate and social security for parents in old age, please identify whether social security:
- Effects the fertility rate positively.
 - Effects the fertility rate negatively.
 - Seems to be empirically dubious.
- d) Has not been investigated by any agency in South Asian Countries.
9. To whom the significant sentence "He who goes to bed early to save candles begets twins" is associated in literature.
- Nehru
 - Viscount
 - Gain
 - Robins
10. Which of the following factors causes high fertility rate.
- Lower social class
 - Urbanization
 - Modernization
 - Education of women.

Q.4 Below have been given certain factors which have a bearing on fertility rate. Encircle "A" if the respective factor cause increase in fertility rate of people and "B" if it decreases the fertility rate.

1. Modernization	A	B
2. Democracy as political ideology	A	B
3. Lack of recreation	A	B
4. Availability of facilities of life	A	B
5. Tribal race	A	B
6. Higher Education	A	B
7. Lower income	A	B
8. Urbanization	A	B
9. Employment of Women	A	B
10. White collar jobs	A	B
11. Education of women	A	B
12. Catholic as a religion	A	B
13. Lawlessness in society	A	B
14. Desire for a son	A	B
15. Joint family system	A	B
16. Marxism as political ideology	A	B
17. Upper social class	A	B
18. Unequal opportunities	A	B
19. Early marriage age	A	B
20. Irreligiousness	A	B

5. KEY TO THE SELF ASSESSMENT QUESTIONS

Q.1	1)	Power structure					
	2)	Procreation					
	3)	Marriage					
	4)	Racial identity					
	5)	System					
	6)	Demography					
	7)	Social system					
Q.2	1)	Behaviour	2)	2.7			
	3)	Feudal	4)	Night baseball			
	5)	Lower	6)	Low			
	7)	Fecundity	8)	Marriage			
	9)	2 to 200	10)	Marxists			
	11)	Fertility	12)	Untouchable			
	13)	Parents	14)	Boys			
	Q.3	1)	d	2)	b	3)	c
		4)	d	5)	a	6)	c
		7)	b	8)	c	9)	b
		10)	a				
	Q.4	(A):	3, 5, 7, 12, 13, 14, 15, 16, 18, 19.				
(B):		1, 2, 4, 6, 8, 9, 10, 11, 27, 20.					

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UNIT 6

POPULATION AND ENVIRONMENT

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INTRODUCTION

World's population is growing rapidly. At the beginning of this century the world population was estimated at 1.6 billion. The world population is expected to rise to 8.467 billion by 2025.

It is true that increase in population has adversely effected the environment. Population growth means increase in the demand for consumer goods, to meet this demand new industries are established, and the use of natural or artificial resources in these industries pollutes the environment. Thus, the basic cause of environmental pollution is not the rapid pace of present day industrialization but the rapid growth of population. It is generally agreed that there is, at present, environmental crises, i.e. shortage of resources, pollution of environment, destruction of wildlife and natural beauty.

At a superficial and immediate level, legislation can mediate and reduce pollution and to some extent conserve natural ecosystem. But for a relatively permanent remedy, a basic reappraisal of the population and environment relationship is required and without a thorough understanding of this relationship. This purpose cannot be achieved. A clean and highly natural environment is a major objective of present day endeavors, which can be achieved through educational revolution in which the population and environment relationship becomes the central theme of educational programs.

This unit contains a description of the elements of environment and a discussion of the various ways in which human population interferes with it.

1. OBJECTIVES

After studying this unit you are expected to be able to:-

1. Define environment and write its elements.
2. Describe ecosystem and balance in nature
3. Demonstrate the realization that natural resources must be husbanded as they have been greatly exceedingly misused by man.
4. Define pollution and write types of pollution and their effects
5. Analyze the interrelationships between population growth and environment
6. Explain orally and in writing the effects of population displacement on environment.
7. List environmental issues in Pakistan
8. Relate population growth with environment

2. ENVIRONMENT

2.1 Environment

The conditions that surround us or the combination of external conditions that affect organisms. It refers to surrounding, and the conditions influencing the development or growth. Simply, all those basic things that effects our development are called environment, Ecology is the study of relationships and

their environment. It deals with living organisms, their habitat, modes of life and relation to its surroundings. A **habitat** is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism. It is the natural environment in which an organism lives, or the physical environment that surrounds, influences and is utilized by a species population. If the area is very small it is called **micro habitat**. A **population** consists of all the living things of the same species in a habitat at any one time. The members of a population have the chance of interbreeding. The boundaries of population are often hard to define. The region of the earth and its atmosphere in which life exists is called biosphere. The system comprising the earth's living things and the thin global skin of air, water, and soil which is their habitat is called "ecosphere".

The environment may also be considered a kind of non-reproducible capital good that produces a stream of various services for man. These services are tangible (such as flow of water or minerals), or functional (such as removal, dispersion, storage, and degradation of wastes or residuals), or intangible (such as smoking chimney).

It appears that the environment will only function smoothly if the demand made on its services does not exceed its output. Thus, the smooth functioning of the environment of human population consists of (1) Energy (2) Atmosphere (3) Water (4) Soils (5) the biotic environment: flora and fauna and (6) the oceans.

2.2 Energy

Energy is the prime mover of the universe and its sources are either sustainable or exhaustible. The sustained energy does not undergo any appreciable loss in supply because of use. Sources of such energy are, radiation from sun and mechanical energy of falling or moving water, internal heat of the earth (giving geothermal power). However, except for hydro electric power, all sustained sources of energy hold limited scope because of the very high cost of harnessing them.

The exhaustible non-renewable energy resources include or fossil fuels, oil, coal, natural gas which have been and still are principal sources of energy.

2.3 Atmosphere

The Solar System consists of the Sun and the astronomical objects bound to it by gravity, all of which formed from the collapse of a giant molecular cloud approximately 4.6 billion years ago. Earth (or the Earth) is the third planet from the Sun as shown in fig. 15.1.

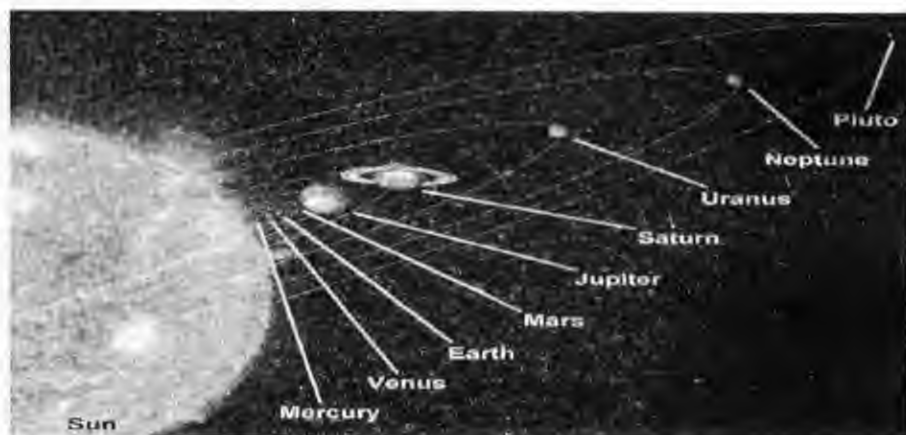


Fig. 15.1 Solar system

The earth is the densest and fifth-largest of the eight planets in the Solar System. Earth is currently the only astronomical body where life is known to exist. The planet formed 4.54 billion years ago, and life appeared on its surface within a billion years. Both the mineral resources of the planet, as well as the products of the biosphere, contribute resources that are used to support a global human population. The earth's atmosphere has no definite boundary, slowly becoming thinner and fading into outer space. Three-quarters of the atmosphere's mass is contained within the first 11 km of the planet's surface. This lowest layer is called the troposphere.

The earth's atmosphere envelopes the planet is made up of number of zones or layers, each with its own characteristics. There are boundaries between the zones. Nearest to the earth's surface is the troposphere, containing the clouds and in which weather patterns are affected. Most of the water that evaporates in the whole atmosphere is found in this zone.

Surrounding the troposphere is stratosphere and its chief characteristics is its constant temperature i.e. it is isothermal. A layer characterized by ozone, in which temperature increases with outward distance up to 50km, then progressively decrease up to 80km, is called the mesosphere.

The gaseous components of the earth's atmosphere are known as air. The gases which profoundly affect living systems are oxygen, carbon dioxide and nitrogen.

2.4 Water

The principal pathways of water throughout the major parts of the earth are collectively referred to as the hydrologic cycle. The hydrologic cycle and relationships between water and organisms are basic to understanding of water as an environmental factor vital to all forms of life. World distribution of water relates to the distribution and the densities of human populations. The quality of water affects the health of man.

About 75 percent of the earth's surface is covered with water. 99.35 percent the total amount of water resources is in the oceans and glaciers. And of the

remaining 0.65 percent, half is as subsurface water. Hence, human populations must use water resources properly and the conservation measures are needed for the water which is available to us as rain (precipitation), in the rivers, streams, lakes and from underground sources.

Of the total, only 0.01 percent occurs as atmospheric water vapor at any given time amounting only to an average of 25 millimeters of rain over the entire surface of the earth.

The movement of water from the surface of the earth to the atmosphere occurs by evaporation, when this evaporation occurs from plants, it is termed as transpiration. The first phase in the return of the water from the atmosphere to the surface of the earth by precipitation is its conversion from water vapor to liquid by condensation. This occurs when the relative humidity of the air reaches 100 percent, or the dew point, and the water starts falling, i.e. rain, or heavy mist (fog). Precipitation results from condensation, but condensation do not necessarily lead to precipitation. Clouds may form and dissipate without precipitation; but when the moisture droplets (or crystals) reach the size where the air can no longer support, then precipitation occurs.

Human population survives upon the free waters of hydrosphere for his ever-increasing demands for agriculture, productivity, domestic and industrial uses, production of hydro-electric energy, inland and coastal area navigation and fish productivity, etc.

Competition for water resources among individuals, regions, and countries and associated human activities is already occurring with the current world population. Water resources, critical for irrigation, are under great stress as populous cities, states, and countries require and withdraw more water from rivers, lakes, and aquifers every year. Diseases associated with water rob people of health, nutrients, and livelihood in developing countries. About 90 per cent of the diseases occurring in developing countries result from a lack of clean water: The number of people living in urban areas is doubling every 10 to 20 years, creating major environmental problems, including water and air pollution and increased disease and food shortages.

Freshwater flows into Pakistan's rivers have also been reduced substantially by water diversions for irrigation and agriculture in recent decades. The decreasing flows of freshwater down the Indus as a result of dams and barrages, together with the shortage of rainfall and high temperatures has resulted in higher salinity levels in the creeks of the Indus River delta. The Indus delta's ecosystem has been degraded by diversions for irrigation since the major barrages have acted as barriers to migrating fish and rare mammals such as the Indus dolphin. Many riverine wetlands have been drained and converted to agricultural land. Most of Pakistan's natural lakes have disappeared over the last 50 years, although several new lakes have been created upstream of the dams and barrages on the Indus. Farmers, especially in the Potohar region, have also created hundreds of micro-reservoirs. While some of these have become important wintering grounds for huge

concentrations of ducks and coots, as artificial reservoirs they lack the reed beds that often border natural lakes and provide a rich habitat for aquatic life.

2.5 Soil

Wherever human populations have been able to develop natural soils in terms of improved fertility, farming, land use for settlements, civilizations were established and extended close to water resources, soil is an intrinsic factor in the development of natural ecosystems, including those involving human populations.

The scientific study of soil is known as pedology. Soil results as a product of two operations: (1) the decomposition of rock, and (2) the decay of organisms. Natural soil originates as unconsolidated mineral material. It is later mixed with varying amounts of organic materials arising from the decay of organisms that have lived either within the developing soil or on its surface.

Soil is a complex system that provides mineral elements, water and soil, air for all kinds of plants growing in or on it. The characteristics of soil are: soil types, texture, soil water, soil air, soil organisms and organic matter.

SAQ. 1. Fill in the blanks.

- v. The branch of science dealing with living organisms and their relationship to its surroundings is called _____. (Ecology)
- i. There should be a _____ between the demand and supply of services from the environment. (Balance)
- ii. The energy coming from the sun is _____ (sustainable/renewable)
- v. The main gases present in the atmosphere are nitrogen, _____ and _____. (carbon dioxide, oxygen)
- v. The return of the water to the earth is called _____. (precipitation)

2.6 The Biotic Environment: Flora and Fauna

2.6.1 Flora

Utilization of plants for more than a mere supply of goods began earlier in colder regions. All important world civilizations have been known to be associated with one or other of the cereal plants. For example, wheat was the main cereal that permitted civilizations to develop. Wheat is most widely cultivated plant and is known to have been cultivated in India and central Europe since 4,500 years ago. Rice is also quite widely used cereal. Maize is now widely cultivated in all tropical, subtropical and warm temperature regions of the world.

Other foods crops that need mention include cassava, potatoes, squashes, and legumes. They are mostly warm season crops. Most oil producing crops of today are also grown in tropical, subtropical, and to some extent, warm temperate regions of the world. Many plants are now cultivated for medicine as well as luxuries. Despite the fact that rubber-tree is native of South America, very little rubber comes from that region. It is now cultivated almost exclusively in South-East Asia,

the Congo and Western Africa and with the major share of the world being produced by Malaysia and Indonesia.

Since most of the cultivated plants are tropical and subtropical in origin, their agriculture possibility started very early in South East Asia between 13000 and 9000 B.C., and then spread outward to other regions.

2.6.2 Fauna

It is evident from history that in contrast to large scale cultivation of plants, only a few species of animals were domesticated. Early usage of animals was mostly for food (meat and milk). Soon their bones were used as tools and ornaments and their skins as clothes. Some animals such as cattle, horses, donkeys, camels and elephants were also used for transporting man and his goods. Despite plant cultivation, domestication of animals proceeded rather slowly at first. About 2000 B.C. animals were known to have been domesticated.

Gradually, the growth in human demands for additional food, fiber and timber, etc. resulted in the habitats of wild animals. To suit the needs of growing population, man has replaced more stable biological communities with man-made ones. Similarly, the creation of national parks in eastern and central Africa, primarily for conservation of native ungulates and tourists attraction has created special problems. Through over-grazing elephants have caused destruction and retreat of the forest in some areas. In many places, human population has destroyed many forests to claim timber and land for housing and agriculture. Hence, there is a great need to balance the population growth.

2.7 Oceans

The oceans cover 71 percent of earth's surface, if they were evenly distributed, they would cover the entire earth about two miles deep. The salinity of the ocean, climatic and geographic difference, influx of fresh water from rivers and melting ice, ocean currents, differential evaporation at various latitudes are some of the elements that shape the characteristics of an ocean.

The salt consists of chlorides of sodium, magnesium, calcium and potassium of which common salt (NaCl) is widely used. Sea-water also contains carbonates. Nitrates and phosphates exist in small quantities but are of great importance in the chemical ecology of the ocean.

Tropical seas have higher salinity than temperate ones, owing to greater evaporation. Below a depth of about 300 meter the ocean's salinity is almost constant i.e. about 3.5 percent.

Besides salts, temperature is also a physical factor of great ecological importance in the ocean as well as on land. The continual circulation of the oceans and their enormous heat capacity help to maintain a general low temperature variation in the sea despite geographical and seasonal differences in absorption and radiation of heat. The greatest seasonal variations in the temperature (8.C to 20.C) have been recorded in the China Sea and the Black Sea.

Ecologically, the ocean offers a wide range of habitats with varied chemical, physical and biotic elements. Life zones exist in practically all parts of the sea, from deep bottoms to the surface. Most marine organisms float or swim in the pelagic zone, where the greatest abundance of life forms is found. In the coastal oceans in the tropics, environmental conditions for marine organisms are optimal and the diversity in species is greater.

3. ECOSYSTEM AND BALANCE IN NATURE

A group of individual organisms, for example squirrels, oak trees of the same kind (species) is called population. In nature we find several populations of different organisms living in the particular area. The populations of plants and animals living and interacting in a given locality are called **community**.

Any natural or biological community also has an environment. A community of living things interacting with one another and with their physical environment (solar energy, air, water, soil, heat and various essential chemicals) is called an **ecological system** or **ecosystem**.

An **ecosystem** is a biological environment consisting of all the living (**biotic**) components in a particular area, as well as all the nonliving, physical components of the environment with which the organisms interact, such as air, soil, water and sunlight. It is all the organisms in a given area, along with the nonliving (**abiotic**) components with which they interact; a biological community and its physical environment. An ecosystem can be a planet, a tropical rain forest, a pond, an ocean, a fallen log, or a puddle of water in a rock. There is interdependence within the ecosystem and at the same time organisms compete for the resources. The competition can be between individuals of the same species or the competition may be between individuals of different species.

All of the various ecosystems on the planet, along with their interactions, make up the largest life unit, or planetary ecosystem, called the **ecosphere** or **biosphere**.

3.1 The Ecosystem

The global ecosystem in which we now live, is the product of several billion years of evolutionary change in the composition of the planet's skin. Following a series of remarkable geochemical events, about two billion years ago there appeared a form of matter composed of elements common on the earth's surface, but organized in a manner which set it sharply apart from its antecedents. Then the products of several billion years of slow geochemical process, the first living things, became powerful agents of geochemical change.

To begin with, they depleted the earth's previously accumulated stores of the organic products of geochemical process as these products were their food. Earth's early life forms sufficiently increased the carbon dioxide content of the planet's atmosphere to raise the average temperature through the "green house" effect. Later, there appeared the first photosynthetic organisms which reconverted carbon dioxide into the organic substances that are essential to all living metabolism. The rapid proliferation of green

plants in the tropical temperature of the early earth soon reduced the carbon dioxide concentration of the atmosphere, thereby lowering the earth's temperature and depositing huge mass of organic carbon which became, in time, the store of fossil fuels. And with the photosynthetic cleavage of water, the earth for the first time acquired free oxygen in its atmosphere. With free oxygen available, more efficient forms of living metabolism became possible and the great evolutionary outburst of proliferating species of plants and animals began to populate the planet.

3.1.1 Food Chain

There is an interdependence of various populations for their food. Plants make their own organic food from an external supply of inorganic nutrients, using energy from sunlight in photosynthesis. Animal nutrition is dependent upon plant nutrition either directly or indirectly. Some animals are used by human beings as a part of their diet.

The photosynthetic green plants are **producers** and the animals are **consumers**. The consumers of the ecosystem are diverse. Some feed directly on plants and we call them **herbivores**. The organisms feeding on animals are called **carnivores**. Many bacteria and fungi causing the decay of dead material, and releasing inorganic nutrients are called **decomposers**.

The green plants require energy (sunlight). All other organisms are dependent on green plants for nutrients. Green plants depend on the activity of decomposers for major part of their supply of inorganic nutrients. This interdependence of the producers, consumer and decomposer organisms means that an ecosystem has the potential to be a self supporting ecological unit. A food chain is shown in fig. 15.2.

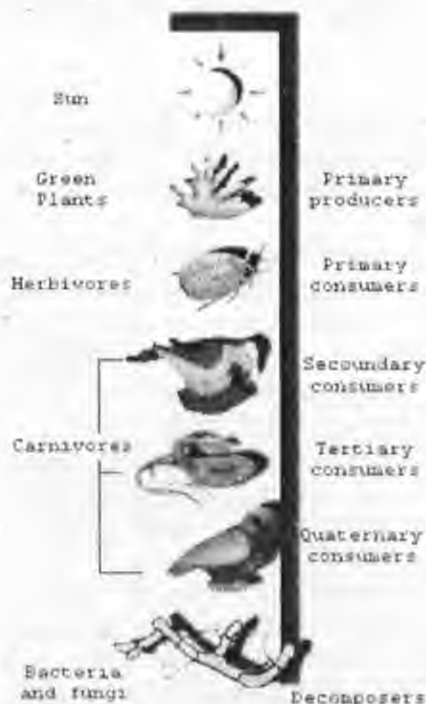


Fig.15.2 A food chain

3.1.2 Food Chains and Food Webs

The feeding relationship in which a carnivore eats a herbivore which has been eating plants is an example of a **food chain**. Energy containing materials are at every step of a food chain. Most food chains connect with other chains, since most organisms are the prey of more than one predator. Thus food chains are linked together to form a **food web**. A food web is shown in fig.15.2.



Fig.15.2. A marine food web

3.2 The Components of Ecosystem

The structure of the ecosystem always has two major parts or components i.e. nonliving and living. The non-living, or abiotic, part includes an outside energy source (usually the sun) various other physical factors such as wind, heat, water, temperature, soil and all the chemicals essential for life. The living, or biotic portion of an ecosystem can be divided food producers (Plants) and food consumers. Consumers are usually further divided into macro-consumers (animals) and decomposers or micro consumers, (chiefly bacteria and fungi).

In any environment, living things are distinguished by their growth, reproduction and mobility apart from other characteristics. Every living species tends to multiply and spread to new and suitable surroundings, and repeats the process once established. Growth in population size continues usually until is checked by some external factor. Such a factor, whatever its nature, is called limiting factor. Limiting factors can be either physical (e.g. climate, presence or absence of water and nutrients, etc) or biological (e.g. competition, predation, parasitism and disease, etc.)

3.3 Function of the Ecosystem

The community cannot live without the cycling of materials and the flow of every component in the ecosystem. Thus in an ecosystem, energy flows and matter (chemicals) cycles. These two major ecosystem functions connect the various structured parts of an ecosystem so that life is maintained.

3.4 Energy Flows in Ecosystem (Food Chain)

The general sequence of who eats or decomposes whom is called a "food chain" or "energy chain". A food chain involves the transfer of food energy from one organism to another when one organism eats or decomposes other.

Two important principles emerge from the food chain concept. First, all life and all form of food begin with sunlight and green plants. Second, the shorter the food chain, the lesser the loss of usable energy. This means that a larger population of humans (or other organisms) can be supported by a shorter plant-based food chain. As over populated country or world will be better off at least in terms of total energy intake, by eating wheat or rice than by feeding such plants to herbivores (with ninety percent energy loss) and then eating the herbivores (with another ninety percent energy loss). But a diet based on one can get some of the proteins essential for good health.

3.5 Chemical Cycling in Ecosystem

In chemical terms, life can be summed up in six elements; carbon, oxygen, hydrogen, phosphorus, sulfur and nitrogen. Although about forty of the ninety two, naturally occurring chemical elements are essential for life, yet these six elements make up over ninety five percent of the mass of all living organisms. These six plus a few others required in relatively large quantities are called **macronutrients**.

Because we have a fixed supply of these six macronutrient elements, they must be continuously cycled from their reservoirs of air, water and soil through the food webs of ecosphere and back again to their reservoirs. These cyclical movements of material are called biogeochemical cycles.

The sedimentary cycles move materials from land to sea and back again. They include the phosphorus, sulfur, calcium, magnesium, and potassium cycles. In the hydrological cycle evaporation and transpiration occur from oceans, stream and ground water etc. and precipitation from atmospheric water vapor.

SAQ.2. Fill in the blanks with appropriate words.

- i. The surface of the earth available for living is _____ % of the surface. (79%)
- ii. Greater evaporation in tropical seas results in _____ salinity. (high)
- iii. These life zones in _____ parts of sea. (all)
- iv. A group of individual organisms of the same species is known as _____. (population)
- v. An ecosystem comprises _____ and _____ things. (living, nonliving)
- vi. A planet, ocean, forest or pond has a/an _____. (ecosystem)

3.6 Balance in Ecosystem

Man's activities have often disrupted the natural balances which have been so finely and painstakingly turned by the natural responses of animals and plants. A natural ecosystem, such as forest, uses energy and recycles its chemicals very efficiently and is, thus, able to support many different plants and animals with no help from us. But in such ecosystem, process of growing trees and large plants is very slow. These provide us with a renewable source of wood. But such systems cannot produce harvestable good rapidly enough to support a large human population. Families in developing countries are very large, and this is the root of the world's population. Population growth at present rate continues to have, a

severe impact on our environment. Constantly increasing population may cause a shortage of food.

As the human population grows, there is a danger that we will convert too many of the world's natural ecosystems, to young productive but highly vulnerable ecosystems. This immature system depends on the existence of nearby natural ecosystems. For example, simple farmlands on the plains must be balanced by diverse forests on nearby hills and mountains. These forests hold water and minerals and release them slowly to the plains below. If the forests are cut for short-term economic gain, the water and the soil will wash down the slopes in a destructive rush instead of a nourishing trickle.

Thus forests must not be valued only for their short term production of timber but also for their vital long term role in maintaining the young productive ecosystems that supply out food. What we must do then is to preserve a balance between young and mature ecosystems.

Virtually all of earth's ecosystems have been significantly transformed through human actions. In the second half of the 20th century ecosystems changed more rapidly than at any other time in recorded human history. Some of the most significant changes have been the conversion of forests and grasslands into cropland, the diversion and storage of freshwater behind dams, and the loss of mangrove and coral reef areas.

4. MALTHUS THEORY

Thomas Robert Malthus, an early nineteenth century economist, is generally considered the father of population study. 'An Essay on the Principles of Population' was published by him in 1798. Malthus theory was that human population tend to increase at a more rapid rate than the food supply needed to sustain them. His conclusion was based on man's material needs, sexual instincts, and reproductive capacities. He believed that sexual passion was virtually uncontrollable and carries risk of producing children. Man's biological need for food and his sexual impulses are in conflict. Malthus stated his principle in the following three propositions:

1. Population is limited by the means of subsistence
2. Population invariably increases where the mean of subsistence increase, unless prevented by some powerful checks
3. These checks, and the checks which repress the superior power of population and keep its effects on a level with the means of subsistence, are all resolvable into moral restraint, vice, and misery.

Malthus believed that if population always increases to the point where further increase is checked by food supply, material progress can produce no lasting improvement. He called the conditions which produced vice and misery, '**positive checks**' while he labeled the moral restraints the '**preventive checks**'. According to his view war, plagues, famine, and infanticide are major positive checks. The preventive check include postponement of marriage when the individual is not able to support children.

5. POPULATION AND ENVIRONMENTAL POLLUTION

It is pertinent for us to know the terms described below for clear concept when we come across.

Greenhouse Effect: the phenomenon whereby the earth's atmosphere traps solar radiation, caused by the presence of gases such as carbon dioxide that allow incoming sunlight to pass through but absorb heat radiated back from the earth's surface.

Ozone Layer: a region of the upper atmosphere, between about 15 and 30 kilometers in altitude, containing a relatively high concentration of ozone that absorbs solar ultraviolet radiation.

Pollution: pollution refers to release of large amounts of foreign matter or energy not found in the environment, into air, water and on the land.

The ecosphere functions in a cyclical process. This is known as the ecological cycle in which each individual element influences the action of the rest of the cycle, and in turn, is influenced by it. For example, the cattle excrete organic waste which the bacteria convert into inorganic products, which are nutrients for the growth of the grass. The grass is eaten by the cattle and the cycle is complete. This process causes self-purification of the environment where waste produced at one stage in the cycle turns into the raw material input for the next. Such possibilities in the human economic system are rather limited. The waste produced is mostly discarded, and must become a load on the environment. If the land surface is overloaded with foreign matter (pollutant), it would destroy its productive capacity and turn it into barren land and eventually desert.

The environmental pollution is natural when caused by volcanoes, earthquakes, floods, etc. and there is also pollution which is caused by man, directly or indirectly. Factory smoke stacks and municipal sewage out-falls come readily to mind when one thinks of direct pollution. Besides, it is important to be aware of the existence of many other less obvious and less easily detectable mechanisms, such as the evaporation of spilled mercury from the floors of dental offices, the leaching of plasticizers into blood stored in plastic bags and the release of toxic substances into food by contaminating bacteria and molds in the ordinary process of food spoilage.

Even more difficult to detect, in general, are indirect forms of pollution, where potentially harmful substances may be chemically transformed or concentrated at locations distant from source of original environmental release. For example, DDT, polychlorinated biphenyls, heavy metals, other chemical that are poorly metabolized and excreted by animals tend to be concentrated in biological food chains. Thus, the pollutants are chemical or physical agents capable of adversely affecting man or other living organisms.

Population dynamics including size of population, changes in population flows and densities pose challenging environmental problems. Global population is increasing by approximately 80 million- -the size of Germany- -each year. Population growth continues to be fueled by high levels of fertility.

5.1 Population Size

No simple relationship exists between population size and environmental change. Limits on such resources as arable land, potable water, forests, and fisheries come into sharper focus. Continued population growth accelerates demand for water. Global water consumption rose six fold between 1900 and 1995.

5.2 Population and Distribution

80 percent of the global population now lives in less-developed nations. Furthermore, human migration is at an all-time high. Rural-to-urban migration is accelerating urbanization. The distribution of people has three main implications for the environment. First, as less-developed regions have a growing share of population, pressures intensify on already dwindling resources within these areas. Second, migration shifts relative pressures on local environments. Finally, urbanization, particularly in less-developed regions, frequently outpaces the development of infrastructure and levels of pollution. In developing countries, on the other hand, the distribution takes on a pyramidal shape with younger generations forming the larger base of the pyramid. This means that in the near future more people will be having babies, increasing excessively high birth rates.

5.3 Properties of Pollutants

A **pollutant** may be described as "a substance present at the wrong concentration". For example oil is a natural product and the yearly hydrocarbon input by organisms to the environment vastly exceeds the petroleum spillage resulting from man's activities. Yet the latter is rightly regarded as pollution because it causes local hydrocarbon concentrations far in excess of the natural levels which organisms are adapted to. Similar comments apply to pollution by heavy metals, sewage and radioisotopes, all of which are part of the normal environment and cause problems only when present in excess.

5.4 Types and the factors of Pollution

It is characteristics of all life that it takes in suitable materials, e.g. food and air and converts them into products of value to itself or its species, e.g. heat, energy, body material, progeny. In doing so it inevitably produces waste material, e.g. carbon dioxide, a fatal matter, which it must get rid of.

5.4.1 Air Pollution

The composition of atmosphere is not fixed. Billions of years ago it consisted mostly of gaseous hydrogen, methane and ammonia. Gradually photosynthesis and aerobic respiration by living organisms changed the composition. Today the atmosphere is about 78 percent nitrogen, 21 percent oxygen by volume, with small amounts of argon, carbon dioxide, water

vapor and other gases. The percentages of carbon dioxide and water in the atmosphere vary, but the other percentages remain relatively constant. Changes in the composition of atmosphere are normal. But the chemicals added to the atmosphere as a result of human activities could increase to such a degree that changes in atmospheric composition could alter world climate and threaten all forms of life.

Normally, "air pollution" is defined as air that contains one or more chemical in high enough concentrations to harm humans, animals, vegetations, or materials. There are two main categories of air pollutants:

- i. A primary air pollutant, is a chemical added directly to the air that occurs in a harmful concentration. It can be a natural air component, such as carbon dioxide or something not usually found in the air, such as lead compound.
- ii. A secondary air pollutant, is a harmful chemical formed in the atmosphere through the chemical reaction among air components.

5.4.1.1 Effects of air pollution

Air pollution effects plant and animal life along with damage to human health. The presence of carbon dioxide in excess of the acceptable levels reduces oxygen carrying capacity of blood, impairs judgment and aggravates heart and respiratory diseases etc. Its effects can be controlled by using modified furnaces and automobile engines, removal from automobile, home and factory gases and by preventing smoking. Experts consider that 60-70% cause of urban air quality degradation in Pakistan is due to vehicles. In the world's cities, outdoor air pollution results in approximately 800,000 deaths annually, due to cardiopulmonary disease, lung cancer and acute respiratory infections. This is the equivalent of 6.4 million years of life lost to premature mortality. The greatest burden of disease caused by outdoor air pollution occurs in cities of developing countries.

Certain negative effects of air pollution are listed below:

- Nuisance & aesthetic insult: Odor, low atmospheric visibility, discoloration of buildings and monument.
- Property damage: Corrosion of metals, accelerated weathering (dissolution) of buildings & monuments, soiling of clothes, building & monuments.
- Damage to plant & animal life: Leaf spotting and decay, decreased food crop yields, decreased rate of photo-synthesis, harmful effects on the respiratory and central nervous system of animals.
- Damage to human health: Oxygen deficiency in the blood, eye irritation, respiratory system irritation and damage and cancer.
- Human genetic & reproductive damage: Largely unknown at present, but possible.
- Ecosystem disruption: Alteration of local and regional climate and perhaps global climate.

5.4.2 Water Pollution

Water pollution occurs when some substance or condition (such as heat) degrades a body of water to such a degree that the water does not meet specified standards or cannot be used for a specific purpose. Thus water pollution depends not only on the nature of the pollutants but also on the intended uses of water.

Water that is too polluted to drink may be satisfactory for industrial use. Water too polluted for swimming may be suitable for sailing or for generating electric power. In deciding what constitutes water pollution, we encounter the controversial problems of human value judgments.

5.4.2.1 Effects of Water Pollution

In order of increasing danger to humans, we can classify the effects of water pollution in the following six classes:-

- Nuisance & aesthetic insult: For example, color (Sediments, mine drainage), odor (Phenols eutrophication), taste (Organic chemicals, sediments).
- Property damage: Its examples are dissolved salts (corrosion), muddy water (sedimentation), loss of real estate and recreation values (Odor, eutrophication).
- Damage to plant and animal life: For example, nutrients like nitrogen and phosphorous (excessive plant growth), some pesticides and other chemicals (fish kills).
- Damage to human health: For example bacteria, viruses, nitrates, some industrial chemicals, some pesticides (in food chain) and metals (mercury, lead-cadmium).
- Human genetic and reproductive damage: For example pesticides some industrial chemicals and radioactivity.
- Major ecosystem disruption: For example, oil (especially refined), some organic chemicals, some pesticides, erosion, nutrients, nitrogen and phosphorus and heat.

5.4.3 Noise Pollution

Ever since the industrial revolution gave us a new influence on the environment, the number of sources associated with human activity. When a sound becomes a source of irritation, then it is noise.

The description "noise" is used for any unwanted signal. In a T.V. programmes, noise associated with electricity and magnetism, you may have met other kinds of noise-noise associated with electronic signal detection system and noise associated with visual perception. Basically, the definition of noise remains the same. In a system where signals are present, it can be said that the system is corrupted by noise.

5.4.3.1 Effects of Noise

We can all tell our own stories of the effects of noise. However, it is worthwhile to list a few. Noise can interfere with speech (telephone conversations, radio, television) and sleep. Noise for being near the airports, motorways or busy urban road, etc. can reduce the value of housing.

Noise can disrupt education and industrial efficiency. Many people living in noisy environments may develop habit of shouting, some children may tend to shut themselves off, many feel stressed and are irritated. There is some evidence to show that noise can often be the "last straw" before onset of psychiatric order. Extremely loud and sudden noises cause pain, with temporary deafness or permanent damage to the ear. Prolonged exposure to noises which are loud (but not extremely loud) can also affect hearing.

So, physiological changes caused by noise are most prevalent in industrial environments. Although general urban noise and startling sounds are a serious problem, yet the noise levels people endure everyday at their work are even more serious.

5.4.1.2 Noise Control

Noise is probably the easiest type of pollution to control. It can be accomplished in three major ways:

- i. Reducing noises at their sources
- ii. Substitution of less noisy machines and operations
- iii. Reducing the amount of noise entering the listener's ear

Many countries have noise control specifications for homes and other buildings. Noise control for an apartment house adds only about five percent to its cost. Noise control provisions could easily be standardized and written in building codes. Like-wise noise control standards for cars, motorcycles, trucks, airplanes, home devices and factories could be set and achieved with existing technology with minor extra cost.

6. HEALTHY ENVIRONMENT AND POVERTY ALLEVIATION

The term "healthy environment" is a huge one, encompassing many different meanings. To complicate the matter, environments that are healthy for one population aren't always healthy for another. This makes it hard to agree upon what is needed in order to create a healthy environment, and to determine what has priority in this environment, such as humans, other animals, insects or plants. Usually, when people use this term, they refer to a human environment that would pose few risks for disease or health hazards.

Our planet's capacity to sustain us is eroding. The problems are well known: degrading agricultural lands, shrinking forests, diminishing supplies of clean water, dwindling fisheries, and growing social and ecological vulnerability from climate change and loss of biological diversity. While these threats are global, their impacts are most severe in the developing world- especially among people living in poverty, who have the least means to cope. If we do not successfully arrest and reverse the erosion of natural resources. Poverty-environment linkages are complex and context specific. Different social groups can give priority to different environmental issues.

60% of the poorest people in least developed countries live in ecologically fragile areas. To address environmental management and poverty reduction, one needs to meet 1) the need to manage and sustain the long-term capacity of the environment to provide the goods and services on which human development depends and 2) the need to ensure

secure and equitable access by the poor to environmental assets and the benefits they can provide in order to expand people's livelihood opportunities, protect their health and capacity to work, and reduce their vulnerability to environment related risks.

Poverty is not just a statistical phenomenon, but can be understood as the incapability of actualizing a person's human potential due to lack of access over certain physical amenities: employment, productive assets, clean drinking water, food, schools, dispensaries / hospitals, sewerage, housing, etc.

Poverty alleviation also involves improving the living conditions of people who are already poor. Aid, particularly in medical and scientific areas, is essential in providing better lives, such as the Green Revolution.

Preserving "the environment" therefore means safeguarding food production, protecting air and water from contamination, sustaining livelihoods, and preserving health. A degraded environment in countries that rely heavily on natural resources for their economic prosperity (i.e. most developing countries) actually exacerbates poverty conditions.

World Bank studies suggest that over 1 billion people world-wide depend, to varying degrees, on forest-based assets for their livelihoods. 15 of 24 essential services provided by ecosystems (ranging from food production, water quality and availability to disease management and climate regulation) are currently being eroded. A relationship between the ecosystem and well-being is demonstrated in fig. 15.3.

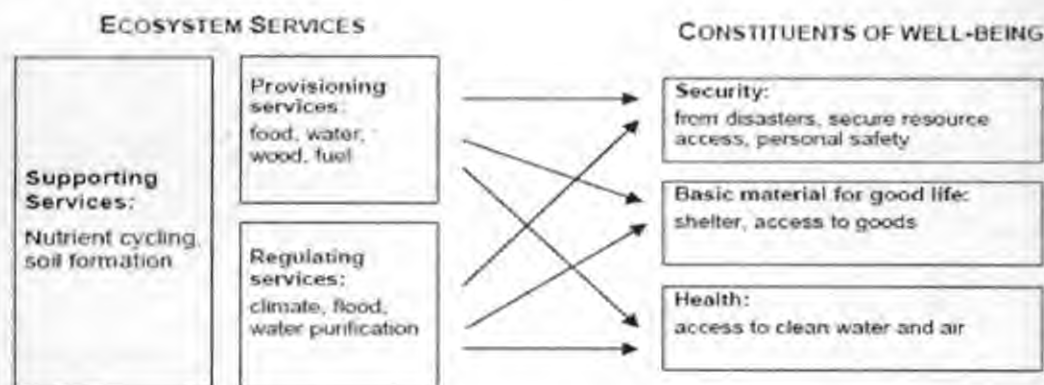


Fig.15.3 Linkages between ecosystem services and human well-being

The poorest people and the poorest countries are the most affected by environmental degradation. They have to eke a living from marginal lands, forests, coastal waters or the peripheries of urban centres. In developing countries, 20 per cent of the total loss of life expectancy is attributable to environmental causes.

Environmental assets make a far larger relative contribution to national wealth in developing countries than in high income countries. In many poor countries, environmental resources provide a safety net which can prove to be vital during crises. At the same time, much economic activity in the developed countries also depends on a healthy environment. Environment-based wealth accounts for 25% of the total wealth in low-income countries, 13% in middle-income countries.

The very poorest do suffer the most from bad environmental management. But the environment (and the related productivity of natural resources) also affect the pace and pattern of overall economic growth. In many developing countries, natural resources provide a stepping stone for moving to more sophisticated, higher-valued, industries. Sound forest management, for example, can open the door to a range of industries linked to wood processing, which can generate considerable employment opportunities, including for skilled and semi-skilled labour. The poor, who rely most heavily on natural resources, also have the lowest capacity to influence political processes and decision-making at all levels.

SAQ. 3.

A. Fill in the blanks with proper words.

- i. The surroundings around the organisms affecting them are termed as _____. (environment)
- ii. The migration is accelerating _____. (urbanisation)
- iii. The substance present at wrong concentration at a particular region/place will be called _____. (pollutant)
- iv. The release of excessive chemicals into atmosphere due to human activities may change world _____. (climate)
- v. Water pollution causes damage to property and human _____. (health)
- vi. Loud noise can affect _____. (hearing)

B. Define the following.

- i. Greenhouse effect
- ii. Ozone layer
- iii. Pollution

7. POPULATION GROWTH

Population growth is the change in a population over time, and can be quantified as the change in the number of individuals of any species in a population using "per unit time" for measurement. In biology, the term population growth is likely to refer to any known organism. In demography, population growth is used informally for the more specific term **population growth rate** and is often used to refer specifically to the growth of the human population of the world.

Overpopulation is a condition where an organism's numbers exceed the carrying capacity of its habitat. The term often refers to the relationship between the human population and its environment, the Earth.

Population growth of a country can be calculated by using the following formula:
Population growth= Births- Deaths+ Immigration- Emigration

Trends in population growth 1950-2009 are shown in Table 15.1. It indicates the increase in just 59 years.

Table 15.1 Population Trends 1950-2009 (In Billions)

Year	World	Less Developed	Developed
1950	2.5	1.7	0.8
2009	6.81	5.78	1.232
	172% Increase	240% Increase	54% Increase

Source: Population Reference Bureau 2009

There is law of seventy used as a simple formula to estimate the period a population may take to double. The formula is as follows:

Population doubling period= 70÷Rate of population growth

The population growth rate of Pakistan is 2.05. Thus the population doubling period will be

$$70 \div 2.05 = 34 \text{ years}$$

In 1950 Pakistan was 14th populous country in the world while it was now at 6th rank in 2010. Similarly we can compare the population size of Pakistan in 1947 and 2010. The population of Pakistan was 32.6 million and 173.5 millions in 1947 and 2010 respectively. As regards the population projection, it will be 242.1 millions in 2030. Pakistan's population has increased 5.6 times during past 63 years.

You will appreciate that the growth has relationship with the population of reproductive age women-15 - 49 years. The population of this group was 46.8 million in 2010 while it will grow to 64.6 millions in 2030.

The population growth of Pakistan through the years is shown in Table 15.2.

Table 15.2 Population Growth Rate

Period	Growth Rate (%)
1951-61	2.45
1961-72	3.66
1981-98	2.69
2010	2.05

Source: Economic Survey of Pakistan, 2009-10

In 2009 Tokyo was the most populous city with a population of 36.67 millions while Karachi was tenth populous city having a population of 13.12 millions.

7.1 Water Availability vs. Population Growth

Water is one of the most important element for human beings. Since we have been ignoring the water storage projects whereas the population has been growing, the availability is decreasing very fast. A brief comparison of water availability is given in Table 15.3.

Table 15.3 Water Availability vs. Population in Pakistan

Parameters/Year	1951	1981	2000	2020
Water availability (In cub meters)	5650	1900	1400	885
Population (Millions)	33.7	84.2	140.0	210.1

Source: National Institute of Population Studies, 2010.

The swelling population of Pakistan is resulting in rising employment, environmental pollution, river water pollution, over exploitation of ground water, solid waste, pollution due to bio medical and e-waste.

7.2 Population, Industrialization and Environment

Income is especially relevant to environmental conditions. Fast developing countries intensify the resource consumption and the production of waste. The least-developed nations, because of low levels of industrial activity exert relatively lower levels of environmental pressure. Environmental pressures can be greatest at the lowest and highest income levels. Poverty can contribute to unsustainable levels of resource use as a means of meeting short-term subsistence needs.

7.3 Technology and Cultural Factors Affecting Environment

Technology and culture influence the relationship between human population dynamics and natural environment. The extent of energy use affects the environment. Industrialization results in greater consumption of natural resources and highly polluting processes. Cultural variations in attitudes toward wildlife and conservation also influence environmental conservation strategies. Over exploitation due to high growth of population has resulted in environmental degradation.

7.3.1 Land Use

Fulfilling the requirements of a growing population requires some form of land-use change- - to provide for the expansion of food production through forest clearing, to intensify production on already cultivated land, or to develop the infrastructure necessary to support increasing human numbers. Converting land to agricultural use can lead to soil erosion, and the chemicals often used in fertilizers can also degrade soil. Deforestation is also associated with soil erosion and can lessen the ability of soil to hold water.

Land use changes from population growth and associated development result in three main trends that have significant consequences, all of which are closely associated with climate change:

- Sprawl development
- Increase in vehicle use and road systems
- Increase in number and energy consumption of households

While some view growing populations in developing regions as the primary culprit in environmental decline, others focus on the costly environmental effects of overconsumption among the slowly increasing populations of the developed nations.

7.3.2 Effect of Energy Use on Environment

The use of various energy sources is one of the important problems stemming from human population growth. Population growth causes more consumption and exploitation of energy, chemicals, and non-renewable resources such as coal, petroleum, and natural gas. It is estimated that some geographical areas run out of them entirely in 57, 24, and 31 years respectively. As the population increases, the demand and usage of automobiles and other machines also goes up. This leads to the greenhouse effect and depletion of the ozone layer.

The global per-capita economic productivity and energy consumption have both increased more rapidly during the twentieth century than has the human population. This pattern has been most significant in industrialized countries. The world's richest 20% of people consume 86% of the goods and services delivered by the global economy, while the poorest 20% consumes just 1.3%.

Developed countries use massive amounts of fossil energy for fertilizers, pesticides, irrigation, and for machines as a substitute for human labor. Because fossil energy is a finite resource, its depletion accelerates as population needs for food and services escalate.

Energy issues are important in relation to climate change. U.S. is the largest carbon dioxide (CO₂) emitter of the industrialized nations in the world, accounting for nearly a quarter of all global emissions. These are predicted to increase by 30% by 2020. With about 5% of the global population, the U.S. consumes approximately 25% of the world's energy. The U.S. residential sector is the largest single consumer of that particular type of energy use worldwide, with American homes generating 25% of global home-related greenhouse gas emissions. 75% of global hazardous wastes are also produced by USA.

7.4 Population Growth: Impacts on the Environment

Humans are in a unique position with respect to other animal species as a result of their intellectual powers. Human beings have the ability to investigate, to remember and reason, to design and invent. As a result humans have developed sophisticated tools, and passed on their knowledge, skills and attitudes to the next generation. These developments have given humans immense power over the world around them. Through these achievements a degree of control of the environment has been developed and has led to the modification of natural

ecosystem and we are facing consequences of accelerating environmental changes. Human population growth is the number one threat to the world's environment. Each person requires energy, space and resources to survive, which results in environmental loss. If the human population were maintained at sustainable levels, it would be possible to balance these environmental losses with renewable resources and regeneration. But our population is rapidly rising beyond the earth's ability to generate and sustain us with reasonable quality of life.

The huge increases in size of the human population have resulted in a substantial degradation of environmental conditions. The changes have largely been characterized by deforestation, unsustainable harvesting of potentially renewable resources (such as wild animals and plants that are of economic importance), rapid mining of non-renewable resources (such as metals and fossil fuels), pollution, and other ecological damages.

At the same time that human populations have been increasing, there has also been a great intensification of per-capita environmental impacts. This has occurred through the direct and indirect consequences of increased resource use to sustain individual human beings and their social and technological infrastructure: meat production, fuel-burning, mining, air and water pollution, destruction of wild habitat, and so forth.

Environmental problems are growing in Pakistan rapidly. Over population is putting a strain on the environment, natural resources. If the country's population continue to multiply at the present rate, the impact on environment could be devastating. It will be through the use of natural resources and production of wastes. In addition environmental stresses like biodiversity, air and water pollution and increased pressure on arable land will result.

7.4.1 Population vs. Consumption

When population growth is coupled with excessive consumption of resources, problems multiply. Currently, 20 percent of the world's people in the highest-income countries account for 86 percent of the total private consumption expenditures, while the poorest 20 percent consume only 1.3 percent. The unequal distribution of wealth and resources leads to obvious waste and excess in the wealthy nations.

Natural resources are under increasing pressure, threatening public health and development. Water shortages, soil exhaustion, loss of forests, air and water pollution, and degradation of coastlines afflict many areas. As the world's population grows, improving living standards without destroying the environmental is a global challenge.

As we humans exploit nature to meet present needs, are we destroying resources needed for the future.

7.4.2 Scarce Water

Currently, 434 million people face either water stress or scarcity. Depending on future rates of population growth, between 2.6 billion and 3.1 billion people may be living in either water-scarce or water stressed conditions by 2025.

The supply of freshwater is finite, but demand is soaring as population grows and use per capita rises. By 2025, when world population is projected to be 8 billion, 48 countries containing 3 billion people will face shortages.

7.4.3 Scarce Cropland

The number of people living in the countries where cultivated land is critically scarce is projected to increase to between 600 million and 986 million in 2025.

7.4.4 Fisheries

Most of the world's ocean fisheries are already being fished to their maximum capacities or are in decline.

7.4.5 Forests

Today over 1.8 billion people live in 36 countries with less than 0.1 hectare of forested land per capita, an indicator of critically low levels of forest cover. Based on the medium population projection and current deforestation trends, by 2025 the number of people living in forest-scarce countries could nearly double to 3 billion.

Nearly half of world's original forest cover has been lost, and each year another 16 million hectares are cut, bulldozed, or burned. Current demand for forest products may exceed the limit of sustainable consumption by 25%.

7.4.6 Global Warming

In 1998, the last year for which global data are available for both population and heat-trapping carbon dioxide emission, per capita emissions of CO₂ continued the upward trend that dominated the middle 1990s. When combined with growing world population, these increased per capita emissions accelerated the accumulation of greenhouse gases atmosphere and, thus, future global warming.

7.4.7 Species Extinction

The earth's biological diversity is crucial to the continued vitality of agriculture and medicine – and perhaps even to life to earth itself. Yet human activities are pushing many thousands of plant and animal species into extinction. Two of every three species is estimated to be in decline.

More than 1.1 billion people live in areas that conservationists the most rich in non-human species and the most threatened by human activities. While these areas comprise about 12 percent of the planet's land surface, they hold nearly 20 percent of its human population. The population in these biodiversity hotspots is growing at a collective rate of 1.8 percent, compared to the world's population's annual growth rate of 1.3 percent.

7.4.8 Public Health

Unclean water, along with poor sanitation, kills over 12 million people each year, most in developing countries. Air pollution kills nearly 3 million more. Heavy metals and other contaminants also cause widespread health problems. The increasing number of people living in particular area will require more health facilities to maintain a certain level of health. Environmental pollution not only leads to deteriorating environmental conditions but also has adverse effects on health of people. In Pakistan tens of thousands of people die prematurely

every year as a result of air pollution while many more suffer from breathing ailments, heart disease, infections, cancer etc.

Millions of people in Pakistan do not have access to clean drinking water. Water born diseases such as diarrhea and cholera kill a large number of people in Pakistan.

7.4.9 Food supply

Will there be enough food to go around? In 64 of 105 developing countries studied by the UN Food and Agriculture Organization, the population has been growing faster than food supplies. Population pressures have degraded some 2 billion hectares of arable land – an area the size of Canada and the U.S. according to World Food Program nearly half of Pakistan's 180 million people are at risk of going short of food due to surging food prices.

Increase in consumption will require equivalent amount of food security. Unfortunately at one time it will be difficult to have the grain stock proportionate to consumption demand due to lack of suitable land for agriculture. Moreover large expenditure for development of irrigation, fertilizers and food processing will be required. There is a need to exercise care and dependence on chemicals whose effects on humans and the ecosystem are not fully known.

7.4.10 Coastlines and Oceans

Half of all coastal ecosystems are pressured by high population densities and urban development. A tide of population is rising in the world's seas. Ocean fisheries are being overexploited, and fish catches are down.

7.4.11 Housing

As the population increases, more residential facilities in terms of housing and civic amenities are required which will place burden on related sectors to fulfill the demand for housing.

7.4.12 Productivity

The productivity is, to large extent, related to the knowledge, skills, and attitudes of the labour force. The provision of vocational technical and professional education for a larger population becomes difficult due to financial constraints. Inadequate supply of skilled manpower leads to low productivity and low quality of service.

7.4.13 Unemployment and Under-employment

The population size in a geographical area will affect the utilization of non renewable energy sources and over use will deplete the reserves. A larger population will have larger workforce possessing different levels of skills and knowledge relevant to the job market. The employing organizations in production and service sectors may not be able to absorb the people available for various types of jobs. Therefore it will result in unemployment of a significant percentage of the people. Moreover there is a likelihood of availability of people with relatively higher than the prescribed qualification who may be given preference in jobs of lower status which will be under-employment in relation to their competencies.

8. POPULATION AND CLIMATE CHANGE

The earth's surface is warming due to greenhouse gas emissions, largely from burning fossil fuels. If the global temperature rises as projected, sea levels would rise by several meters, causing widespread flooding. Global warming also could cause droughts and disrupt agriculture.

Global warming has been caused by human activities at greater than 90%. Greenhouse gas emissions at or above current rates, changes in climate will very likely be larger than those already observed in the last century. More people means more warming. More cars mean more greenhouse gas emissions-the primary gas of concern being CO₂. It is therefore indisputable that population growth has contributed significantly to climate change.

As the world population continues to grow geometrically, great pressure is being placed on arable land, water, energy, and biological resources to provide an adequate supply of food while maintain the integrity of our ecosystem. The per capita availability of world grains, which make up 80 per cent of the world's food, has been declining for the past 15 years. More than 99 per cent of the world's food supply comes from the land. As the human population grows, the requirements for fertile land, fresh water, energy, plus the maintenance of biodiversity also grow.

An important link between population and climate change can be seen from the effects of climate change i.e., through increased severity and frequency of major storms, sea level rise, or increased droughts. The main effects include:

- Altered weather and seasonal patterns
- Rising sea levels
- Less available freshwater
- Habitat and biodiversity loss
- Human health threats

Population's shift into suburban and exurban areas has created modern land use changes that by nature require more vehicle use and increased amounts of construction and land transformed to build new highways, roads, and parking lots.

SAQ. 4.

A. Fill in the blanks.

- i. The pollution of less developed countries increased by _____% between 1950 and 2009. (240%)
- ii. Pakistan was the _____populous country in 2010.
- iii. The population of Karachi was _____ million in 2009.
- iv. As the population of Pakistan has been increasing between 1951 and 2000 the water availability has decreased to about _____. (25)
- v. Environmental pressures are the greatest at the lowest and _____ income levels (highest)
- vi. Industrialization leads to _____ consumption of natural resources and _____ pollution. (more, more)

- vii. The largest producer of carbon dioxide in the world is _____. (USA)
- viii. The main green house gas is _____. (CO₂)
- ix. The highest-income countries consume around _____ percent of the total consumption.

8.1 Effect of Population and Climate Change on Freshwater Resources

Although people may more commonly link climate change's effect on water with rising sea levels, the affect of climate change on freshwater resources is also a serious concern. Climate change is affecting freshwater resources, mainly through:

- Increased temperatures and evaporation rates
- Decreases in the volume of snow pack and glaciers (a critical supply of freshwater during spring melting)
- Decreased rainfall and increased drought conditions

9. POPULATION AND SUSTAINABLE DEVELOPMENT

Slowing the increase in population, especially in the face of rising per capita demand for natural resources, can take pressure off the environment and buy time to improve living standards on a sustainable basis. The following points need to be considered:

1. As population growth slows, countries can invest more in education, health care, job creation, and other improvements that help boost living standards. In turn, more resources become available that can boost productivity.
2. In recent years fertility has been falling in many developing countries.
3. Globally, fertility has fallen by half since the 1960s, to about three children per woman. In 123 countries, the population continues to increase rapidly. In 47 countries the fertility rate averages between three and five children per woman and in 44 countries the average woman has five children or more.
4. Almost all population growth is in the developing world. As a result of differences in population growth, Europe's population will decline from 13% to 7% of world population over the next quarter century, while that of sub-Sahara Africa will rise from 10% to 17%.
5. As population and demand for natural resources continue to grow, environmental limits will become increasingly apparent. Water shortages are expected to affect nearly 3 billion people in 2025. Slowing population growth is possible by providing families and individuals with information and services needed to make informed choices about reproductive health.
6. Family planning programs play a key role. Even in adverse circumstances – low incomes, limited education, and few opportunities for women – family planning programs have meant slower population growth and improved family welfare.

10. ENVIRONMENTAL IMPACTS OF CAMPS AND SETTLEMENTS

Environmental concerns have rarely, if ever, been a factor in the choice of sites for refugee or Internally Displaced Persons (IDP) camps.

Environmental effects of camps are briefly discussed below:

10.1 Deforestation and the fuel wood crisis in camp areas

Severe deforestation occurs around the larger camps. A source of energy for cooking food, boiling water or heating is not provided. In addition, when no formal accommodation is supplied, timber is needed to construct temporary dwellings.

10.2 Land degradation in camp areas

Land degradation in camp areas is caused by over-harvesting of seasonal fodder and shrubs by camp residents and their livestock.

10.3 Unsustainable groundwater extraction

The provision of clean water is a standard component of the aid supplied to the major camps and settlements. The larger camps are commonly supplied with water via a network of groundwater boreholes fitted with either hand pumps or electric submersible pumps.

10.4 Water pollution

The concentration of a large number of people in temporary dwellings raises concerns for sanitation and bacteriological contamination of surface and groundwater.

10.5 Uncontrolled urban and slum growth

Large-scale migration from the countryside to urban centers has been largely uncontrolled, with the result that a large number of urban slums or informal squatter settlements have been established. Urban slums are associated with a series of environmental and social problems.

11. ENVIRONMENTAL SITUATION IN PAKISTANI CONTEXT

The continuous rapid growth in population, urbanization, industrialization and transportation in Pakistan has resulted in an indiscriminate exploitation of the natural resources and the environment. There are no strict legislative rules and regulations to check and control the environmental pollution. The hazardous wastes generated by industries are being discharged into the air, soil and water even with least care for their proper treatment. This is causing an irreversible loss to human health and other resources. Most of the foreign substances which occur beyond a certain level in the atmosphere, drinking water and food stuffs, are hazardous. Some chemicals even at trace concentrations and other heavy metals which have accumulative effects are toxic and pose serious health problems. Environmental pollution in the country has increased to an alarming level particularly during the last decade. This has resulted in an increased number of cancer, heart and various other chronic diseases among the general public and occupational workers.

11.1 Climate Change

For Pakistan, increased flooding, rock avalanches, and water resources disruption as the Himalayan glaciers continue to melt are forecast. Floods exceeding design parameters could destroy the dams, barrages, and other fixed-capacity irrigation infrastructure on which the country's agriculture depends. The risk of hunger will also increase because of declining crop productivity owing to heat stress.

11.2 Solid and Hazardous Waste

Roughly 48,000 tons of solid waste is generated every day in the country. Streets are treated as receptacles for waste. There is only partial segregation

of recyclable waste. Waste paper, plastic, metal, glass, rubber, rags and so on are thrown on the streets along with domestic, trade and institutional wastes. Across Pakistan, surface and groundwater sources continue to be polluted by raw sewage, industrial waste, and agricultural runoff. Most of the rural population defecates in or near cultivated fields. Less than half the urban sewage is drained off through sewers and covered drains, and only a small fraction of that is treated before being disposed off into water bodies.

11.3 Biodiversity

Natural ecological zones have been affected by human activity that very few truly natural habitats remain. Among the countries of South Asia, Pakistan has the least variety of mammals, birds, amphibians, and higher plants per representative unit of area. A productive and sustainable agricultural system depends on maintaining the integrity of biodiversity.

11.4 Rangeland Degradation

The alpine grasslands of Khyber Pakhtoon Khaw, the Northern Areas, and AJK remain relatively intact, but 85-90% of the country's arid and semi-arid rangeland has been degraded as a result of the fivefold increase in livestock numbers since Independence in 1947. In addition, the flux of more than 5 million Afghan refugees in the 1980s has transformed community pastures in the tribal areas of Khyber Pakhtoon Khaw and northern Balochistan into open access rangelands.

11.5 Energy Use

In recent years, Pakistan's rising consumption of oil vis-à-vis its flat oil production. Natural gas presently accounts for the largest share of Pakistan's energy use, amounting to about 50% of total energy consumption. Pakistan currently consumes all the domestic natural gas it produces and has started facing severe shortages. Pakistan contributes little to greenhouse gas emissions and global climate change. Nearly 80 per cent of the world's fossil energy used each year is used by the developed countries.

11.6 Natural Dust

There is general aridity in the country. Due to high temperature in summer (40-50°C), fine dust rise up with the hot air and form "dust clouds" over many cities of southern Punjab and upper Sindh. Dust storms are also generated from deserts (Thal, Cholistan, and Thar) particularly in summer season and adversely affect air quality in the cities. Hydrocarbon having good affinity with dust particles form aerosols of inhalable sizes which cause allergy and asthma.

11.7 Habitat and Biodiversity Loss

The main cause of biodiversity loss is "habitat loss" from land use changes for rapidly occurring, widespread development across the country, extraction of energy resources, and other means. These all are linked to increases in population numbers and people's consumption of land and other resources.

12. KEY ENVIRONMENTAL ISSUES IN PAKISTAN

Pakistan is facing many environmental issues. The main issues are summarized in Table 15.4.

Table 15.4 Important Environmental Issues in Pakistan

Water	Declining per capita availability, Pollution of water bodies, Ground water depletion, Inadequate service delivery
Energy	Inefficient use, High transmission losses, Air pollution (caused by vehicles and industries)
Health	Impact of air pollution, Impact of water pollution, Lead exposure
Irrigated Agriculture	Soil erosion, Water-logging, salinity, and sodicity, Rangeland degradation and desertification, Intrusion of saline water into freshwater
Biodiversity	Low forest cover, Deforestation, Loss of habitats and species extinction
Pollution	Air and noise pollution, water pollution caused by untreated sewage following into the rivers
Waste	Lack of proper waste management system
Migration	High migration rate (4.5%) to urban centers and inadequate municipal resources, unplanned urbanization

Source: Government of Pakistan, 2005, *State of Environment Report (Draft)*, Islamabad: Ministry of Environment.

13. POPULATION GROWTH, SOCIAL CHANGE, PRODUCTION AND CONSUMPTION PATTERNS

Social change means alterations in structure and functions of the society. It refers to an alteration in the social order of a social group or society; a change in the nature, social institutions, social behaviors or social relations of a society.

Social change is a comprehensive change of societal structures and institutions, including changes in economic, technological and cultural frameworks of a society. A broader term cultural change is used to embrace all changes occurring in any branch of culture including art, science, technology, philosophy, etc. Thus social change will be only part of cultural change.

As the economic conditions of a country improve individual income rises, there is a tendency to use more facility at home and workplace as well as in daily activities. The individuals change their life style from simple to more comfortable one. This is accomplished by utilizing the technological gadgets for comfort and luxury. The social change again may be reflected in methods of production and services. The extended use of technology in various sectors of national life adds to the quality and nature of the products. The industrial products themselves lead to certain behavioral patterns in the society.

High population growth results in extended use of natural resources to satisfy the basic needs of food, shelter, and clothing. The imbalanced use of natural resources to cater the needs of growing population results in environmental degradation which are

discussed at length in certain sections of this unit. It can, however, be observed that conservation of natural resources and use of renewable energy sources need to be seriously considered in the face of rising population in the developing world.

14. RESPONSIBILITIES FOR PROTECTION OF ENVIRONMENT

In the 21st century, we are left with no choice but to redefine the values and principles that underlie our relationship with the Earth. Lifestyles and ways of thinking have changed dramatically, having made tremendous progress in science and technology, economic growth, and material wealth. These changes have enhanced the quality of life for some, but have diminished it for others. We also have witnessed the continuation of unsustainable environmental practices and lifestyles which have detrimentally affected our surrounding natural environment and indeed our very lives.

The global community is in need of a set of imperatives that would allow equitable access to the environmental benefits of the planet, without exceeding its carrying capacity. We must come to an understanding that the current global environmental crisis is a result of human greed and excessive materialism, and the mistaken belief that science and technology hold the key to the solution of all our problems. Unless we change our values and beliefs, such conditions will further environmental degradation, and ultimately lead to the collapse of natural systems that support life. The key is to recognize that humans and the natural environment are interdependent and part of a larger entity, the "Whole-Life-System." We must therefore understand that the environment is not a subject of exploitation, but is a partner for life.

Protecting the environment is a task which can only be accomplished if the individuals and societal institutions work hand in hand for the preservation of natural resources. Roles of organizations and citizens are briefly given in the following paragraphs as outlined by 1997 Seoul Declaration on Environmental Ethics:

14.1 Governments

The declaration expects from the national governments to initiate policies for sustainable development and gradually reduce the environmental degradation. They may undertake projects and programs for creating a balance between population and use of natural resources. Various suggestions have been made in the Seoul declaration. Various areas in which countries can move and implement the declaration are briefly discussed below:

14.1.1 Policy Coordination

All policies must be formulated for the purpose of preserving the sustainability of the Whole-Life-System. To that end, must ensure that their policies are the result of coordinated efforts by the relevant government agencies.

14.1.2 Precautionary Approach

All development projects must be subject to rigorous analysis through Environmental Impact Assessments (EIAs). Any project that is expected to have significant adverse environmental effects must be accompanied by appropriate precautionary mitigation measures and/or alternative action plans

to counter all such impacts. As declared, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

14.1.3 Accessibility

Policies concerning development and environmental preservation must reflect the interests and informed judgment of all stakeholders. To achieve full representation, information pertaining to these policies must not only be made available to the public, but done so in an accommodating manner to allow sufficient time for public comment to be introduced and incorporated into such policies.

14.1.4 Support for Environmentally-Sound Technology

Governments must support the development of environmentally-sound technologies for all sectors of the economy and encourage their application. To this end, all governments must endeavor to make the necessary financial commitments to subsidize research, development, and use of the technologies where appropriate. Governments should create enabling conditions and incentives for the development of such technologies.

14.1.5 Equity

Benefits and burdens from development and environmental policies must be redistributed to all members of society in order to promote social and economic equity. In particular, the focus of such policies must be concentrated on redistributing the benefits to women, children, elderly, minority and indigenous groups, and the physically challenged, with a view to their empowerment. Governments must also promote suitable conditions for active participation by all members of their societies.

14.1.6 Environmental Education

Education, especially at an early age, has a significant effect on how people form attitudes toward the environment, and is thus crucial. Educational programs designed to enhance awareness of environmental issues and ethics must be developed and applied at all levels of society through all available and practical means. It must be made a goal for governments to make strong efforts to financially support such educational programs.

14.1.7 International Cooperation

Nations share common responsibilities for preserving Earth's environment. This amounts to active involvement in regional and international cooperative efforts and joint implementation of environmentally-sound policies, while faithfully complying with established multilateral agreements. Moreover, in order to further international cooperation, newly developed scientific information as well as experience in environmental and development policy-making should be exchanged worldwide to facilitate efforts for global environmental conservation and to provide early warning of impending problems.

14.1.8 Environmentally-Sound Lifestyle

No program can achieve its goals without the involvement and participation of its citizenry. Campaigns through various mass media needs to be

undertaken to develop awareness about the relationship between population and environment. Citizens groups at different levels may be formed to educate the people in environmental issues and develop awareness about preservation and conservation of natural resources.

All members of society must cultivate a lifestyle that accepts and is consistent with sufficiency rather than greed and excess. Bearing in mind that Earth's resources are limited, each person must avoid a culture of extravagant material consumption and pursue ways to preserve the planet by improving consumption patterns. Each individual can make a difference in his or her consumption patterns, and when accumulated as a collective whole, the positive effect can be tremendous. This may be the only way to ensure that an inhabitable environment will be sustained for generations to come.

14.1.9 Active Involvement

Individuals are encouraged to participate both morally and politically in all levels in the decision-making process of environmental policies in order to improve the quality of decision-making, avoid corruption, and ensure that their interests can be properly represented. Participation will accordingly guide government policies to be equitable and well-balanced in both direction and purpose.

14.2 Other

14.2.1 Public Awareness

An important role of NGOs is to heighten public consciousness by organizing and maintaining environmental instruction and guidance. NGOs must amplify their efforts to educate and train individuals, organizations, and public officials so that the message for the Whole-Life-System can be spread through multiple channels. In addition, NGOs must take initiatives in preserving the natural environment for future generations by way of projects and clean-up activities.

14.2.2 Role of "Watchdog" and Liaison

NGOs must serve the role of "watchdog" and must be prepared to assess and evaluate policy decisions, and where necessary, propose alternative environmental and development policies. Furthermore, in order to serve the role of liaison between governments and industrial sectors, NGOs must promote active dialogue between the stakeholders.

14.2.3 Specialization and Coordination

Given the increasing complexities of the environmental issues, NGOs could benefit from further specialization within their field of expertise. They are also encouraged to build coalitions with NGOs of other disciplines to enhance the effectiveness of their actions. Forming cooperative networks will further promote the exchange of information, knowledge, and expertise.

14.2.4 Environmentally-Friendly Business Practices

The industrial sector must actively apply eco-efficiency principles in order to use less energy and materials for the same amount of output and to reduce emissions and waste. This requires the widespread adoption of

environmentally-friendly production technologies, an increased use of recycled materials, and a greater emphasis on substituting goods with services. The financial and insurance sectors must also increasingly direct investment toward environmentally-sound projects.

14.2.5 Regional Environmental Activism

The increasingly decisive roles of regional environmental activism initiated by local citizens and communities are critical to the protection of the region's environment and ecosystems. With this in mind, regional NGOs should make an effort to form coordinated and interactive alliances with citizens and communities to effectively preserve the environment.

14.2.6 Extended Responsibilities

In developing and manufacturing their products, all industrial sectors must incorporate the concept that their responsibilities do not stop at the end of the production line, but extend to all phases of a product's lifecycle, in particular, for its disposal.

14.2.7 Environmental Management System

Industries must examine the undue pressures they may exert on the environment through regularly timed audits of their business practices. Accordingly, industries must exercise a determined effort to minimize such pressures on the environment and to prevent and abate pollution. Industries must incorporate the costs of implementing pollution-prevention technologies as part of their normal production activities.

14.2.8 Research and Development

Academic and research institutions must fulfill their role of accumulating knowledge in environmental science and developing mitigative and pollution-prevention technologies, as well as less resource-consumptive technologies. In so doing, scientists and engineers must exercise high moral discipline and maximum precaution in their research, bearing in mind that the potential effects which their research uncovers may exert adverse pressure on the environment.

14.2.9 Interdisciplinary Approach

Science and technology alone cannot resolve the impending environmental crisis. An interdisciplinary approach, which includes other branches of academic endeavors such as the humanities and social sciences, is needed to develop active research programs for a better understanding of the increasingly complicated environmental problems.

14.2.10 Caring and Compassion

Every person is encouraged to assist those who are environmentally, economically, and socially disadvantaged and extend the boundary of community to include all living beings.

14.2.11 Spiritual View

The scale and magnitude of environmental problems are such that they must be recognized as having a religious as well as scientific dimension. Efforts to safeguard the environment need to be infused with a vision of the sacred. Religious and spiritual leaders must accept a responsibility to make known

the full dimensions of this challenge. The cause of environmental integrity and justice must occupy a position of utmost priority for people of faith.

14.2.12 Publicizing Environmental Issues

The media must fulfill their responsibility to convey and report with accuracy the state of the environment and related environmental policies. With their influential ability to heighten public awareness of such issues, mass media and the entertainment industry must make additional efforts to publicize environmental success stories and issues of interest which may inspire others to action.

14.2.13 Utilizing Electronic Media

The new electronic media open a new dimension of unprecedented interactive and fast-paced exchange of information. Therefore, efforts should be made to utilize these new forms of media to facilitate communication of environmental information and active participation of people throughout the world, in pursuit of preserving the Whole-Life-System.

SAQ 5. Fill in the blanks.

- i. Fertility in the developing countries has been _____ in recent years.
- ii. It is estimated that by 2025 the water shortage will affect nearby _____ billions people. (3)
- iii. Major part of rangeland, in Pakistan, has degraded due to _____ increase in livestock number. (fivefold)
- iv. Migration to urban centers in Pakistan is _____ percent. (4.5)

Answers to SAQs

- SAQ 1: I. ecology II. Balance III. Sustainable/renewable IV. Carbon dioxide, oxygen V. precipitation
- SAQ 2: I. 29 II. High III. All IV. Population V. living, nonliving, ecosystem
- SAQ 3: I. environment II. urbanization III. Pollutant IV. Climate V. health VI. Hearing
- SAQ 4: I. 24 II. 6th III. 13.12 IV. 25 V. highest VI. more, more VII. USA VIII. CO₂ IX. 86
- SAQ 5: I. decreasing II. 3 III. fivefold IV. 4.5

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UNIT 7

POPULATION POLICIES AND MODES OF CO-OPERATION IN SOUTH ASIA COUNTRIES

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INTRODUCTION

More than half the population of the world, and about three fourths of the population of Asia, are suffering from poverty, malnutrition and undernutrition. It has already become a question of survival for a significant proportion of the population in increasing population. All efforts to improve the standard of living of the people and alleviate human misery are nullified by the increase in population. There are some projections which indicate that at the present rate of population increase vital resources will be exhausted by the end of this century. How far technological innovations will help solve the problems of food, energy and other resources without deteriorating the environment and effecting animal and plant life is very uncertain.

Governments concern over matters of population is not a new phenomenon. State intervention, in the form of laws or decrees encouraging marriage, taxing the unmarried, subsidizing families with children, regulating immigration and emigration, fixing a legal minimum age for marriage and the like, have existed since ancient times. In general, these measures represented a populationist philosophy that equated power and prosperity with large numbers.

During the same period, policies with a somewhat similar content but a different rationale were taking shape in other countries where very low rates of growth were evoking fears of an impending decline in numbers. Fertility rates were below replacement levels in many of these countries, and although only France and Austria actually recorded an excess of deaths over births, it was considered but a matter of time until most of Western Europe would be experiencing a natural decrease of population. At the same time, sustained economic depression was precipitating a new concept of social justice and governments were taking steps to protect workers against the risks of unemployment and to guarantee a minimum family wage that would take account of the number of dependents supported by each worker.

Although it was not clear to what extent the low birth rates than current were a continuation of the secular trend and to what extent they were a temporary phenomenon. It was thought that low marriage rates and low fertility within marriage had an essentially economic explanation. Consequently, the attempt to sustain or increase the birth rate became linked to the development of social security programmes, particularly those aspects of social security that contribute to the economic security of the family. In so far as these programmes have a demographic intent, they are distinguishable from the populationist policies described above, in that they are not expansionist in the imperialist sense but, rather, are animated by a desire to avoid population decline or, at most, to achieve a gently increasing population.

Similar programmes have developed in the former Soviet Union and Eastern Europe, as an integral part of the plan to build the socialist state. The populationist overtones of these programmes stem in part from the old controversy between Malthus and Marx, in which Marx took the position that "overpopulation" was a misnomer for imperfect former organization, and in part from a felt need, in the Soviet Union at least,

for a larger population. But in these countries, as else where, the nature of population policy and even the question of whether a policy exists is to some extent a matter of the interpretation a government chooses to make of its actions and programmes. Thus, a nation's stated policy is not necessarily an exact statement of its purposes of the moment. Indeed, the prevailing pattern of social and political organization is such that much of national policy in any area takes form through a series of compromises between contending pressure and hence has elements of ambiguity, not to say of ambivalence.

After World War II, with the emergence of new nations and a growing awareness of the economic problems of underdeveloped countries, population policies that represented a different point of view began to develop. In many of the underdeveloped countries mortality was falling remained high and rates of increases as great as 2.5 to 3.0 percent per annum. ⁽ⁱ⁾ Such rates implied a possible doubling of population within a generation and aroused fears that the effort to raise levels of living would be impeded by the necessity to provide substance for the increasing numbers. Policies that favour reducing or stabilizing the rate of population growth have, therefore, begun to evolve in some of the densely populated developing countries of South Asia. The purpose of this unit is to throw light on these population policies and experiences of various countries with specific reference to South Asian Countries.

OBJECTIVES

The main objectives of this unit are to help the students:

1. Realize the need and importance of population policy.
2. Understand the meaning scope and elements of a population policy.
3. Discuss and analyse the population policy in global perspective specifically from health point of view.
4. Discuss and analyse the population policies of South Asian Countries.
5. Identify the place of population education as a vital part of population policies of South Asian Countries.
6. Identify the means and methods of inter country and inter- institutional cooperation in South Asian Countries with respect to welfare and control of their population.
7. Put forward the suggestion for formulation of sound and effective population policies in South Asian Countries.

1. POPULATION POLICY - MEANING AND SCOPE

Population policy may be defined as legislative measures, administrative programmes, and other governmental action intended to alter or modify existing population trends in the interest of national survival and welfare. Many aspects of public policy and of social change in general have an impact upon demographic trends. Population policy embraces those aspects of public policy that are designed to counteract the unwanted demographic effects of over-all policy and of other social forces. Most frequently, attention is focused upon efforts to maintain, increase, or restrain the rate of growth of a population. Thus, the major purpose is to control population size, but consideration may also be given to influencing its composition and its geographic distribution.

The quantitative aim of population policy is emphasized here, partly because policies now in force are concerned primarily with affecting size and rate of change and partly because the inclusion of non quantitative, or qualitative aims would make population policy virtually synonymous with public policy in general. Biological quality, which is the object of measures designed to control the genetic structure of a population, is sometimes regarded as properly the concern of population policy.

Ideally, population policy involves the examination of past and current demographic trends and their causes, an appraisal of the future demographic changes implied by these trends; an evaluation of the social and economic consequences of expected patterns of change in the perspective of what is regarded as the national interest; and finally, the adoption of measures designed to bring about desired changes or prevent undesired ones. Demographic trends are a function of changing relations between the forces of fertility, mortality, and migration, whether in the population as a whole or differentially in its various segments. Policy makers are, therefore, logically concerned with understanding the factors of change in these three processes and with ways and means of influencing the direction and amount of change in each of them. However, practical considerations are such that most of population policies, as these exist today, are directed at influencing fertility, although the trends and effects of migration and mortality may also be carefully studied, for changes in them can be the precipitating factors that render population a "problem".

2. WORLD POPULATION POLICY

In view of the almost universal desire among the people in all countries to improve their health services and thus reduce their death rates as fast as possible, it will be in order to note briefly the more important implications involved in the establishment of health services aimed at reducing these rates to new and still lower levels in the underdeveloped countries which now contain about two-thirds of the world's population. The first fruits of even modest health services are already clearly evident. Health programmes meet with comparatively little resistance from even the most tradition minded peoples even the ones, who generally oppose all change. Scotching an epidemic of smallpox by vaccination, saving a pneumonia victim or a victim of a dozen other diseases from death by the use of penicillin, teaching mother how to protect her baby from diarrhea and enteritis are such obvious benefits that almost all people are glad to avail themselves of these services almost as soon as they know about them. The immediate effect of the services is so much to be desired by individuals that the more distant social and economic effects of reducing the death rates rapidly, in perhaps two-thirds of mankind, are quite generally overlooked.

These health services should be established and made effective whenever possible, but we do urge that the more distant social and economic effects of these health services should be anticipated and deliberately controlled as far as this is possible. Indeed, under certain circumstance, we should be prepared to defend the thesis that an efficient public health-service in the underdeveloped areas of the world is an essential prerequisite if rapid headway is to be made in the establishment of a world-population policy, the purpose of which would be to bring about a better adjustment of the rate of population

growth to the rate of increase of the goods and services man needs to assure himself of a decent level of living.

Stated briefly, the circumstances under which we should be justified in urging better and better health services are: (1) that the health services staffs from the top to the bottom, are made fully cognizant of the effects of their work on the growth of the population. Including the fact that the more efficient the health services become the more rapid the growth of the population will be;⁽²⁾ that the health services of a country and its physicians where private practice prevails, are ready and willing to inform the mothers, who bring young children to them for advice regarding their care, that they can control the size of their families and are also willing to show them how this can be done if the mothers are interested and want to know. At present, in underdeveloped countries, few mothers know that the voluntary control of the size of the family is possible and even fewer know how to exercise such control.

Perhaps the greatest obstacle to the establishment of a world-population policy is the fact that very few nations are ready to adopt national policies and in the underdeveloped countries whose governments have openly espoused population policies they cannot implement them quickly. Until the mass in any country are able to control the size of their families and are willing to do so, no government can guarantee cooperation with other nations in a world-population policy aimed at adjusting man's numbers to his ability to support them well. But there are also other serious obstacles to the formulation and implementation of a world-population policy — nationalism, racism, ideologies and perhaps most of all, the sheer inertia of traditionalism in most underdeveloped countries. The importance of these several obstacles will vary from country to country and it will be impossible here to discuss all these obstacles as they operate in different countries and among different peoples. Nationalism as an obstacle to the effectuating of a world-population policy perhaps needs little discussion as it is quite widely realized today that the citizens of every country are generally much more concerned with the welfare of their fellow countrymen than with that of the people in the other countries. Racism is of importance because now for the first time the coloured peoples of the World see a chance to attain equality of living conditions with the whites. Indeed, by reason of their present numbers and their more rapid growth, some of their leaders are hoping not only to become equal with the whites economically but also to become dominant politically. It is not surprising that some of the leaders of these people are reluctant to adopt a population policy which would equate the growth of the coloured peoples with that of the white peoples.

As regards the conflicting ideologies of different people, it must be recognized that orthodox communism denies that the growth of population poses any threat to the welfare of man and this doctrine appeals to many of the leaders in underdeveloped countries⁽²⁾. Moreover, these leaders are often conditioned by past experience to accept the view of the Communists that imperialism, colonialism, and capitalism are the real causes of their poverty and its accompanying hardships. The point here is that several very potent forces

make a world-population policy very unlikely to become an effective agency in reducing the rate of population growth in the foreseeable future.

Furthermore, it should be realized that the control of population growth is much less urgent in some regions and countries than in other; i.e. in some countries the population is not growing so fast and/or the natural resources are so abundant that there is little danger of a significant deterioration in the living conditions of the people during the lifetime of the present leaders if their resources are exploited intelligently. In others, the need for slower growth is already urgent. Can any government in any country set up "a most desirable size of family" for its people and enforce the adoption of this standard within a few years? The answer must be No for those countries which still have good, unused land and large natural resources. This being the case, can these countries be expected to cooperate in encouraging slower population growth even though it might hasten considerably the attainment of a higher level of living for their people through more rapid economic development?

Most of the people in any country, even when they know how to control the size of their families, may be expected to confirm more or less closely to some standard size of family only if they are convinced that their community approves of such control and that it is to the advantage of their own family to do so. There can be no doubt that the governments of most countries, through education and propaganda, can in the course of time influence the judgement of their people in the determination of what family size is best. It can also hasten the adoption of the small-family pattern if that seems desirable. But the range of family size within which governmental efforts of this character can operate even in the more developed countries appears to be quite small at the present time. As a matter of fact, when the leaders of the authoritarian governments tried to influence their people to have more children, they did not succeed because the people as a whole did not agree with the policies of their governments for increasing the size of their families.

The simple fact is that at the present time only a few countries have birth rates and death rates which appear sufficiently low to give some assurance of a decent living for all citizens. The leaders of these few countries might feel sufficiently confident of the direction and the amount of their population growth for several years in the future to feel justified in subscribing in good faith to a world-population policy for the control of population growth. The leaders of most of the nations of the world, however, could not do so even with a small degree of confidence in the ability or the willingness of their people to conform to some world standard, chiefly because they do not know how long it will take their people to adopt effective control over the birth rate and how fast the death rate will decline in the next few decades. (This assumes that any world-population policy must have as its first and primary objective for the next few decades the reduction of the rate of population increase in those countries which now have high birth rates and in which death rates are falling rapidly). Moreover, as we have already noted, there is no unanimity of opinion among leaders of the high-birth-rate people as to the desirability of a policy to reduce the rate of population growth.

In spite of the fact that no effective world policy calculated to reduce the rate of population growth can be achieved in the future, it is highly desirable to get a statement of world policy regarding population growth from as many nations as possible and even from private organizations in nations unready to declare any official attitude toward population growth. Such declarations of the desirability of population control or even in opposition to a policy of population control would help to get for a while the matter before the people and would almost certainly hasten the thoughtful decision of an increasing proportion of couples regarding the desirable size of their own families. In the long run this decision must be personal, but any expression of opinion, official or private, which stimulates the consideration of voluntary population control is preferable to ignoring the problem which faces the world when a large majority of the more than 3,000 million people in the world suddenly begin to increase at a rapid rate — 3 percent or more per year — before these people have the know-how and the physical means to increase their goods and services fast enough to say nothing of providing themselves with goods and services increasing faster than their numbers.

3. POPULATION POLICIES OF SOUTH ASIAN COUNTRIES

Recognizing the gravity of the population situation, most countries in the South Asian region have now adopted population policies in one form or another. By population policy, as already stated, is meant any set of official measures to influence the size, growth, composition or distribution of population in a country. Among the policy measures taken in this regard are those relating to health, agriculture, education, employment, housing, status of women, industrial development, rural development, population resettlement schemes, social legislation and family planning. Of these, family planning is a direct measure to influence fertility whereas the others are indirect measures to influence not only fertility but also the other two components of population change, namely mortality and migration. On the basis of the population policy measures, direct and/or indirect, taken by them the countries in the South Asian region generally took following measures: (a) formulated an official policy to reduce the population growth rate. In addition to supporting family planning to implement this policy, countries in this category also support family planning for reasons of health and as a human right; (b) gave official support to family planning activities for reasons other than demographic reasons. Countries in this category usually support family planning for reasons of health and human right.

South Asian Countries, aware of demographic trends and their adverse effect on economic growth and social progress, have embarked on official birth control programmes, which have met with varying degrees of success. These programmes will-publicized family-planning services, legalized abortion, population education and provision of all forms of contraceptive devices. Programmes in India, and Sri Lanka offer family-planning services, birth-control clinics, vasectomies, and contraceptives (including intra-uterine device). The South Asian countries lag behind in formal programmes, but public consciousness and basic planning were growing in the early 1970s. It is not yet clear whether or not methods of birth control will be successful in the short term, but the long term effect is expected to show important decreases in the birth rate.

In India, population policy is oriented toward restraining the rate of increase, on behalf of economic development and of raising the level of the people. This policy was initiated in 1952, with the first five-year plan and subsequent action has put increasing emphasis upon the need to reduce the widening gap between a lowering death rate and a persistently high birth-rate. The third five-year plan, promulgated in 1961, stated, "the objective of stabilising the growth of population over a reasonable period must be at a very centre of planned development".⁽³⁾ The plan called for a large-scale programme of education and motivation for family planning, provision of birth control advice and contraceptive supplies, and government-sponsored research in demographic trend, contraceptive methods, and family-planning motivation. Family-planning clinics were established in a large number of rural areas; and family-planning services are available at expanding, with the government subsidizing the manufacture and distribution contraceptives. The question of how to make the programme more effective is under constant study. At the request of the government, the United Nations sent a team of experts to India in 1965, "to assess the problems involved in accelerating the adoption of family planning by the people and to advise the government on action that might be taken for this propose".⁽⁴⁾

The law against induced abortion has not been relaxed and pregnancy may be artificially terminated only to save the life of the mother. Voluntary sterilization, however, is regarded as an acceptable means of preventing births, and the practice seems to be spreading. Another fact of Indian policy has to do with the effort to raise the average age at marriage. In this connection, the seventh five-year plan places special emphasis on the education of women and on the provision of new employment opportunities for women.

Although the situation in India has been emphasized here, it should be made clear that India's problem of equating the growth of population with the expansion of its economy is not essentially different from that of most other South Asian Countries. Every improvement in health services will reduce the death rate, provided even the present low per capita consumption of the necessities of life can be maintained. But if every improvement in health services to mothers and their children can also be made to contribute to the wider spacing of children, the birth rate might decline substantially before urbanization and industrialization can be relied on to assume an important role in keeping the birth rate at a desirable level.

As far as the population policy of Pakistan is concerned it revolves round the theme that the population welfare is a realistic endeavour to reconcile family size with individual needs and national resources. It seeks to ensure a harmonious blend between people's aspiration and the nation's needs. For this purpose, the first government programme of population welfare which was initiated in 1965 was marked with elaborate administrative infrastructure at the federal, provincial and the district, levels including indigenous mid-wives as basic field functionaries. Later, evaluation of this approach, however, indicated, that the programme succeeded in disseminating information, family planning practice was only 6 per cent.

The second approach covered the various operational units of the country with male-female motivator teams. The central feature of the continuous motivation system (CMS) included quarterly visits of teams to the eligible couples for door-step delivery of supplies as well as for motivational purposes. The teams also kept house-hold records for recruiting potential acceptors and making referrals to clinice. The evaluation of this approach indicated that field activities did not live upto earlier expectations.

The third approach provided contraceptive inundation whereby oral pills and other conventional devices were distributed through the network shopkeepers and local agents as well as hospitals, clinics and field-worker for ensuring availability to the practising couples. The Pakistan Fertility Survey, however reported that only 22 per cent of eligible women knew the sources of information and services.

During the fourth phase, family planning was integrated with national public health programme. This arrangement was conceptually sound and was hence, supported in principle. Nevertheless, the complexities of integrating the two large programmes, i.e. health and population, presented various difficulties and administrative problems. The real understanding of the importance of health and population planning remained lacking among both health and population staff. Population planning continued to be viewed primarily as a means to reduce the average family size and the population growth rate, with little or no emphasis on the interventions to reduce infant and maternal mortality, while the health programme continued to emphasise preventive and curative health service.

In 1980, realizing the need of ra coordinated approach, the population planning programme was placed under the umbrella of Ministry of Planning and Development and a multi-sectorial approach commenced through health outlets of a number of governmental and non-governmental agencies as well as family welfare centres of the population welfare programme. Local community participation, particularly that of women, began to be enlisted for motivation, education and service delivery.

The strategy during the sixth plan involved a shift from the uni-purpose family planning approach to a close inter-relationship between population resources, environment and development. It, thus, followed a multi-sectoral and multi-dimensional approach. For better acceptance of family planning participation of all relevant government departments and NGOs, the private sector and local leadership was encouraged, greater emphasis was placed on training and motivation of community leadership, media and programme personnel. Concerned staff of emographic, bio medical and social research activities was strengthened in order to improve "their efforts towards a better acceptance of family planning services.

During the sixth plan period the family planning programme averted 1.3 million births which included 0.3 million births due to the carry over effects of IUD insertions and contraceptive surgery cases. The number of birth aversions which was 0.2 million in 1983-84 increased to 0.4 million in 1987-88 while the number of acceptors of various contraceptives, increased from 0.9 million in 1983-84 to 1.9 million in 1987-88.

During the sixth plan period the gross allocation for population planning and welfare programme was Rs. 2.3 billion and the net allocation Rs.2.2 billion.⁽⁵⁾

The strategy in the latest plan i.e. seventh five year plan of Pakistan has been based upon active support and participation of relevant government departments, public institutions and the private sector in providing services and promotional programmes.

The main features of the population welfare programme are as follows:

1. Refinforcing the multi-sectoral approach for great social acceptance of the small family norm and to cater to growing demand for service through a well knit service delivery system.
2. Giving recognition to the inter-relationship between population, resources, environment and development,
3. Shifting to more effective contraceptive methods, contraceptive surgery, IUDs and injectables;
4. Designing and implementing a more effective communication strategy directed towards clearly defined target groups to promote and accelerate family planning acceptance;
5. Strengthening field supervision from the federal to the grass-root level and
6. Introducing special incentives to accelerate acceptance of small family norms.

The programme also envisages the provision of maternal and child health (MCH) services through the programme's own service outlets, in addition to family planning services. This is expected to (i) narrow the gap between, the awareness and the actual use of contraceptives, (ii) increase breast feeding practices, (iii) improve the health of mothers through birth spacing and (iv) decrease infant mortality.

The population welfare programme for 1983-93 is a rolling plan within the perspective plan. The plan comprises the programmes of the four provinces and the federal government. The federal programme includes policy planning, setting of national target, securing foreign assistances, contraceptive supplies, training, information education and communication (IEC), monitoring, research, evaluation, social marketing of contraceptives, involvement of Non-Government Organizations (NGOs) and extending family planning facilities and services.

To conclude, the general population welfare policy and programmes in South Asian Countries include improved and expanded service delivery of contraceptives, establishment of family welfare centres which will provide package of services including family planning, mother and child care and health education, provision of mobile service units, involvement of semi-government and private organizations, establishment of institutional framework for family welfare, introduction of population education as a discipline in education system and use of mass media for attitudinal change among the populace. But in the light of outcomes of these steps it is the emergent need that the South Asian Countries will have to include some revolutionary measures in their official population policies to curb the population explosion in the region.

4. POPULATION EDUCATION AS AN INTEGRAL PART OF POPULATION POLICY IN SOUTH ASIA

Almost all countries in South Asia started family planning programmes in the fifties and sixties in order to curb rapid population growth. Some of these programmes included an information-education communication (IEC) component as an integral part. The IEC component generally used the mass media, over-simplifying complex issues in the process. For example, a message frequently conveyed was that "small family is a happy family". This simple assertion could hardly be considered as true or meaningful in many situations. The main purpose of the family planning information activity in this narrow sense was to create awareness of the possibility of controlling the number and frequency of births by means of various contraceptive techniques.

The family planning programmes of South Asian countries have, with few exceptions, not been conspicuous successes. This lack of success may be attributed to such factors as the high level of literacy among the people, the low status of women, social and religious preferences, and the absence of any system of social security. In any case, it has been increasingly recognized that programmes of information-education-communication addressed to adults on a simplistic basis are not sufficient. Adult programmes should have a strong component of education, but at the same time it is necessary to provide relevant education for the child of today who will be the adult of tomorrow.

In South Asian countries, children under 15 years of age constitute about 40 to 45 per cent of their population. These young people will constitute the adult population in the next few decades, and their reproductive behaviour and attitude towards family size will be of central importance in determining population growth. They need to become aware of the problems caused by population pressure for the individual, the nation and the world, and to be provided with an education that would help them to make decisions with regard to population issues. Probably, a combination of various methods inducing population change is needed to solve the problem, and among them education adults as well as children, the parents of the future, may be one of the most influential. As to what kind of education will be most effective is still an unanswered question. There are immediate problems of trained personnel, in this new field, as well as of materials which can be used by educators, teachers and students.

As a result of the recognition that education is an important instrument for bringing about changes in attitude and behaviour, many countries in the Asian region have taken an interest in developing population education programmes. Initially, the concern of population education was to supplement family programmes through the formal education system. Since then, a broader concept of population education has developed in South Asian Countries. Population education, as presently conceived, aims at developing an understanding of the processes and consequences of population change on the family, community, society, nation and the world, and develop such attitudes and behaviours as may help in making responsible decisions. Many countries have initiated population education programmes for the formal school system, but recently they have been extended to out-of-school adults and youth in a few countries.

Unesco became involved in population education in the late sixties. The United Nations Fund for Population Activities (UNFPA) has also recognized the role of population education in promoting an understanding of the problems arising from rapid population growth and excessive urbanization. It has provided financial support to national and international programmes in population education through Unesco, ILO, FAO, WHO and through the UNDP country programmes.⁽⁶⁾

At the national level, population education programmes stem from the population policies adopted by the respective governments. Population education activities are in this sense carried out within the framework of national development programmes. Two countries in South Asia, Bangladesh, and Sri Lanka have national population education projects funded by the UNFPA, while Pakistan and India have programmes jointly funded by World Bank and other international agencies. In some countries separate units or cells for population have been created. There are also countries in the region which have not developed any organized programmes in population education as yet. Thus, population education is at different stages of development in the South Asian countries, but almost all the countries having population policies show an awareness and interest in developing population education programmes for the in-school as well as out-of-school population as an important component of their national development activity.

5. MODES OF COOPERATION

Cooperation is a joint or collaborative behaviour that is directed towards some goal and in which there is some common interest or hope of reward. It is always good to regard cooperation as an ethical norm, as a social process, or as an institutional structure. In ethics and religion, cooperation has been among the most honoured of values throughout human history closely related to competition. Cooperative effort is one of the central mechanisms of revolution. Hence cooperation of all the countries of South Asia in the effort of population education and welfare may accelerate the best of achievement of objectives. Following modes and methods for inter-country and intra-country cooperation may be of some importance in this regard.

5.1 Conferences and Seminars

- Conferences and seminars have become a recognized method of launching a new programme, validating a new approach, and establishing a climate of cooperation and coordination between the experts from various parts of the region. A conference or a seminar is a meeting of individuals called together to engage in discussion with the aims of accomplishing a limited task within a restricted period of time. Conferences and seminars in the field of population at national and coordination among the professionals. These may bring together all the agencies, organizations, governments and individuals who have a permanent working relationship in the field of population education. These may bring together thousands of delegates and observers to consider a wide range of population problems, substantive discussion on the matters relating to population of delegates to a new viewpoint, the validation of a proposed programme of population welfare, and the preparation of a new set of resolutions, suggestions and recommendations

for population welfare and control at national and-South Asian Regional level. Ideally, the arrangement of a conference or seminar in such that all its members sit facing one another in a way that their interchange is mediated and dominated by none. This method of Inter-change is very much effective in this age. Besides other merits, conferences and seminars may also provide a ready made focus of attention of Intra-country as well as Intra-institutional research in the Held of social demography. Conference and seminar technology must be actively employed as a means of national and regional cooperation in South Asian countries.

5.2 Workshops

Workshops are a relatively new area of activity for cooperation, coordination, training, and exchange of ideas. It has been proved helpful at the national regional many thousands of people at the regional and state levels. Regular conduct of workshops in the field of population education and welfare followed by its follow tap at South Asian level may prove much helpful to achieve the objective of cooperation and coordination. Workshops can also be a good device to help the personnel of population education and welfare to learn their job, improve their skills and get latest information about procedures and practices of population welfare in the region. Unesco and SAARC can arrange such workshops to achieve the end of regional cooperation and coordination. During the sessions of such workshops the delegates may also learn about their duties and responsibilities and question the professional people who serve as advisors during the workshop. Such workshops may have their purpose as the exposure of participants to new ideas or the eliciting from the participants of ideal to encourage change in the field of demographical studies. These are also the vehicles of stimulating change in the region. Career information workshops should be periodically and regularly arranged at national and South Asian level.

5.3 Coordination/Cooperation Cells

Population welfare and population education can only bear its fruits if it is taken as joint and collaborative effort on national as well as regional level. This coordination may be direct or indirect, formal or informal, but there should always be a combination of efforts towards a specific end of population welfare. At higher intellectual levels coordination and cooperation should involve reciprocity of intent as well as jointness of efforts and activities/projects. This coordination should have a formal institutional structure in the name of coordination cells. These should be established initially at two levels.

1. At National Levels

Each country of South Asian Regions should establish "National Coordination Cell for population Welfare" (NCCPW) under the Ministry of Education and Social Welfare whose main functions may include:-

- i) To coordinate efforts of different agencies, organisations and individuals in the field of population welfare in the country.
- ii) To disseminate the literature, research findings and successful experiences in the field of population welfare.
- iii) To act as resource centre for the researchers, agencies, organisations

and individuals in the field.

- iv) To provide advisory services in the field.
- v) To act as "stock exchange" in the field of population welfare and education.

2. At Regional Level

A coordination cell with the name "South Asian Coordination cell for Population Welfare and Education" (SACCPWE) should be established under the auspices of SAARC Secretariat and it should perform the same functions at SAARC level which NCCPW is expected to perform at national level with the additional function of coordination among all NCCPW'S in the South Asian Countries.

5.4 Exchange of Experts and Literature

Exchange refers to the transaction of resources, personnel, product and services with in a society or from one society to the other society. From primitive non-currency days to this computer age this exchange process has been very much useful for benefitting from one another's efforts. Reciprocity rather, better to say, obligatory reciprocity has been described as the best of three modes of exchange by Marcel Mauss and Karl Polanyi.⁽⁷⁾

Regular exchange of literature on population welfare and education at regional level through proposed SAARC coordination cell may help the countries to benefit from successful and effective experiences of others. Similarly visits of experts on reciprocal basis or through International agencies like SAARC or Unesco may triable the professionals to visualize the ongoing projects on population welfare and education in different parts of South Asian region. Short-range and long-range programmes of visits of professionals must be designed at regional level. A full illustration of how reciprocal exchanged can not be presented here.

5.5 Displays

The great displays are also great events that give visible proof of the productive efforts and exchange relations that can be mobilized to reaffirm and celebrate the activity and system.

Displays of current activities of population education and welfare programmes operative in various countries of South Asian region may also work as a productive means of cooperation among these countries in this effort. These displays will be a witness of operations and achievements in the field of population education and welfare in the neighbouring societies. Such displays may portray the social worth of individuals, groups, agencies and governments and may inspire the others to work on the same lines. These displays may include goods, posters, brochures, gold and silver bracelets, photos, sketches, slides, transparencies, video-films, advertisements, and so on. These displays should exchanged between the South Asian Countries on "Redistributive Exchange Basis (REB)".

5.6 Conclusions and Suggestions

It can be concluded from the foregoing discussion on population policies and modes of cooperation that population policies and experiences of South Asian countries are part of the world population policy. It must be concluded that knowledge about the interaction between population trends and economic growth is still imperfect and that there is plenty of room for honest disagreement about which of the population policies will be most effective in securing the general welfare. Although it is reasonable to contemplate the prospect of stationary populations in the advanced countries of North America, Western Europe, and Japan, the possibility is remote in the South Asian countries. The period of the 1960's was one of rapid development in the area of population policy, especially among South Asian Countries. Many influences social, political, economic, religious were at work, both in and outside of government and at both national and international levels. Population policies of south Asian countries veiterate the theme that the objective of population control programme is to give the married couple a choice of having children or not having them and of determining the timing and number of births. The normative principle is that all children should be wanted. Population size would thus be governed by the number of children people want to have. But almost without exception people in South Asian Countries opt for a number of children significantly in excess of that required to replace themselves, even after they have been exposed to population control education they apparently choose smaller families, but still larger than replacement size. This requires some revolutionary changes in the population policies of South Asian countries so as to achieve the objective positively.

As regards the modes of cooperation and coordination, seminars, conferences, workshops, displays, exchange visits and the formation of coordination cells at national and regional levels should be actively employed.

SELF ASSESSMENT QUESTIONS

- | | |
|-------|---|
| Q.No. | The statement given below provide a description of a specific concept discussed in the Unit. Write down the term of that concept, to which the description most appropriately be associated, in space provided in the beginning of the description. |
| 1. | _____ is a Joint or collaborative behaviour that is directed towards same goal |
| 2. | _____ may be direct or indirect, formal or informal but there should always be a combination of efforts towards a specific end. |
| 3. | _____ refers to the transaction of resources, personnel, product and services. |
| 4. | _____ great events that give visible proof of the productive efforts and exchange relations. |
| 5. | _____ may be defined as legislative measures, administrative programmes, and other governmental actions intended to alter or modify existing population trends in the interest of national survival and welfare. |

Q.No. Fill in the blanks with most appropriate word.

2

1. Beside other merits, conferences and seminars may also provide a ready-made _____ of attention.
2. Regular conduct of _____ in the field of _____ population education and welfare at national and regional levels may be helpful to achieve the objective of cooperation.
3. More than _____ the population of the world, and about _____ of the population of Asia and suffering from poverty.
4. After world War-II the fertility rate was approximately _____ percent
5. _____ denies that the growth of population poses any problem to the welfare of man.
6. _____ five year plan of India places special emphasis on the education of women.
7. Population welfare programme in Pakistan was initiated in _____
8. In 1980 population planning programme in Pakistan was placed under the umbrella of Ministry of _____
9. During the Sixty Five year plan period in Pakistan the gross allocation for population planning and welfare programme was _____
10. Unesco became involved in population education in late _____

Q.No. In the questions given below four probable answers have been provided. Only one is the correct answer. Encircle the correct answer.

3

1. Drive for larger native and racially pure population may be directly associated with the political and territorial ambitions of,
 - a) Western powers
 - b) Asian countries
 - c) Axis powers
 - d) Religious institutions
2. Besides other benefits which one of the following may be helpful for the training of population personnel:
 - a) Seminars
 - b) Conferences
 - c) Workshops
 - d) Exchange visits
3. In which pair of the countries there was once recorded an excess of deaths over births
 - a) United Kingdom and France
 - b) France and Austria
 - c) Austria and Italy
 - d) Italy and Japan
4. The world population policy emphasized upon.
 - a) Health services
 - b) Social services
 - c) Economic development
 - d) Birth control

5. The most, serious obstacle in the formulation and implementation of a world population policy is:
- Nationalism
 - Racism
 - Ideologies
 - Traditionalism
6. Which one of the following is the best mode of exchange.
- Reciprocity
 - Obligatory reciprocity
 - Market
 - Seminars
7. Public consciousness and basic planning in population started in South Asian countries in:
- 1950s
 - 1960s
 - 1970s
 - 1980s
8. For validating a new approach in population education, which one of the following will be most suitable:
- Literature
 - Conferences
 - Workshops
 - Reciprocal Visits
9. Number of birth aversions in 2002 – 2003 in Pakistan was:
- 0.2 million
 - 0.3 Million
 - 0.4 Million
 - 0.5 million
10. Conferences and seminars are best means of:
- Exchange of persons
 - Exchange relations
 - Demonstration of output
 - Preparation of new set of resolutions and recommendations
- Q.No. 4 Outline briefly the elements of a population policy.
- Q.No. 5 Name the three forces which can be considered as the functions of demographic trends.

KEY TO SELF ASSESSMENT

Q.No.1	1)	Cooperation				
	2)	Coordination				
	3)	Exchange				
	4)	Displays				
	5)	Population Policy				
Q.No.2.	1)	Focus				
	2	Workshops				
	3)	Half, three fourth				
	4)	2.5 to 3.0				
	5)	Communism				
	6)	Seventh				
	7)	1965				
	8)	Planning and Development				
	9)	2.3 billion				
	10)	Sixties				
Q.No.3	(1)	c	(2)	c	(3)	b
	(4)	a	(5)	d	(6)	b
	(7)	c	(8)	b	(9)	c
	(10)	d				
Q.No.4.	1.	Examination of past				
	2.	Current demographic trends				
	3.	Appraisal of the future demographic changes.				
	4.	National Interests				
	5.	Evaluation of the social and economic consequences of expected demographic changes.				
	6.	Measures to bring about desired changes or prevent undesired ones.				
Q.No.5.	Fertility, Mortality and Migration					

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UNIT 8

AGENTS AND KEY PERSONNEL IN POPULATION EDUCATION

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INTRODUCTION

The study of population has long been a subject of interest among social scientists and among all those who wish to understand the basic problems and needs of human beings. In recent years, all the countries are paying ~~full~~ attention to their populations' problems. There has been significant progress in the field of population studies and research and more recently in population planning and population education in the Asian region. More and more recognition is given to the effects of population growth on the region's social economic and individual development; and a rapid rate of population growth is recognized as a factor that could be detrimental to the social and economic development of a country, unless appropriate constructive measures are undertaken.

The study of population deals not only with the size of a population but also its composition and distribution, growth and change. Some of the important questions which are related to these factors include; how many people live in a given area; what changes are taking place in the size of the area and why; what kind of people live in an area and how different they are from the people in another area in terms of age, sex, race and other characteristics; how are people distributed in the area and what changes are taking place in their distribution.

Many countries have regarded population as a major problem and required their educational systems to deal with it appropriately. Hence, population problems are to be reflected in their educational systems. The inclusion of population related materials and concepts in the text-books certainly help the individuals to understand the various problems of population in the country and will also suggest the measures to cope with these problems.

Population education provides learner with an understanding of the relationship between population growth and dynamics and various aspects of the quality of life.

A population education programme consists of (i) the collection and analysis of population data; (ii) the nature of population growth and human development; (iii) the problems of urbanization; (iv) family life education; and (v) planning to cope with the problems of urbanization and population growth.

As a pre-requisite to the formulation of a national programme of population education, it is necessary to identify the target groups which should be exposed to population education for propagation of its various concepts in the masses. It must include the precise objectives in respect of each group; the resource persons to be used for reaching each target group; the instructional strategies to be used; the mechanism for the production of instructional materials; research needs and problems; and programme evaluation.

In brief, population education is a programme which is planned, integrated and sequential. Population education is the educational process whereby individual learn, (i) the causes and most important the consequences of population phenomena for themselves, their communities and the environment and (ii) the possible effective means

by which the society as a whole and they as individual can respond to and influence these phenomena in order to enhance the quality of life now and in the future. It is anticipated that as a result of increased awareness both of the consequences of population changes and of the consequence of own population related behaviour, individuals will be able to make better informed and conscious decisions concerning their own behaviour, both individually and as a member of a society.

OBJECTIVES

The objectives of the unit are:-

1. Conceptualize the meaning of Catalytic Agents and Key Personnel.
2. Describe the meaning and importance of population education.
3. Point out the roles of various key personnel for the introduction of population education in the society.
4. Understand the implications of population related problems for the community development.
5. Analyze the population problems and suggest the ways and means to overcome those problems through Key Personnel.

1. POPULATION EDUCATION AND NATIONAL DEVELOPMENT

Public leaders, educationists and economic planners in Asian countries are now fully aware of the importance of population education. All of them know that population education is playing a significant role for human resources development. Population education prepares and helps the individual to participate in the social/national development in the following ways:-

- a) Understanding the determinants and consequences of population change.
- b) Examining their own attitudes and values in relation to a changing population situation.
- c) Making decisions that are responsible and based on understanding and not ignorance of chance or fate.
- d) Appreciating that he can make a difference in the kind of society he wants to live in or the kind of society he wants his children to live in i.e. to some extent he can control his destiny.

2. ROLE OF CATALYTIC AGENT

Who proposes a change and how do they go about it. The identity of the originator greatly affects acceptance or rejection. Innovations which are first adopted by persons at the top of the prestige scale and power system are likely to filter downward quite rapidly; those first adopted by low-status persons are likely to percolate upward more slowly, if at all. Successful change agents often seek to make the change appear by identifying it with familiar cultural elements. King Ibne Saud introduced radio and telephone to Saudi Arabia by quoting the Holy Quran to them.

Change agents must know the culture in which they work. This point is stressed in many of those guide-book prepared for the officials working developmental programmes in under developed countries.

Strangely enough the efforts of the change agents are not always appreciated. However, continuous efforts should be made to achieve better results. Population education being the need of the time requires a through propagation and as such the various agents are required to work continuously till the desired results are achieved.

Population education programmes seek to influence the understanding of different people regarding population related issues and develop in them appropriate skills required for analyzing and defining issues in a way which are personally meaningful and socially relevant. Those who are more capable may be asked to spread the messages of population education all over so that the masses are aware of the problems caused by population size and distribution. They should also try to motivate them to handle these problems. Here we are giving a list of persons key personnel and Catalytic Agents-who can actively work for the introduction of population related concepts among the people living around them:

1. Teachers
2. Teacher Trainers
3. Curriculum and Text Book writer
4. Supervisors/Administrators
5. Doctors/Para-Medical Staff
6. Political Leaders
7. Community Leaders/Workers
8. Religious Leaders
9. Head of Family
10. Media Artists

What is their job-description? How they contact with the People? What can they do for the introduction of population education concepts? All these questions are being answered in this unit.

3. TEACHER

The role of a teacher in society is both significant and valuable. It has far-reaching influence on the society he lives in and no other personality can have an influence more profound than that of a teacher. The teacher must be a dedicated person. His code of ethics encourages him to be self-sacrificing, finding pleasure and joy in nurturing young minds and the persons living in the society, inspiring right attitudes in the students towards themselves, society and the country.

Teacher has always been regarded as nation-builder. He is always anxious to see that each of its products (students) is facilitated with the practical know-how of leading a dignified, harmonious and balanced life. Pupils learn the art of successful living in the school. Teacher helps them in this respect. By virtue of his position he can bring constructive changes among the children.

So he must be aware of the implications of times - the social forces and conditions influencing the educational endeavor. He should study the changes in the society and be able to identify the societal ingredients that have implications for education.

The world, today, is a rapidly changing world. New goals are being set up to achieve readjustment of society to new situations. Population growth is becoming serious problem for most of the countries and it is the teacher who can develop its awareness amongst his pupils. He is in a much better position to strengthen the capacity of the pupils, within his area of professional expertise, to deal with population issues. He can give training for bringing about attitudinal changes in others. In some countries, like Pakistan population questions are especially sensitive areas on account of past traditions, customs, religions & cultural bindings. Teacher is the key person who can overcome such difficulties or problems. The teacher can integrate population education with other subject areas so as to draw a specific picture concerning specific population issues and problems. He can emphasize the concepts of the family as unit, the family composition and child rearing practices that contribute to family size and the idea that a small family helps healthy relationship within a family. The teacher may explain the effect of rapid population growth by relating the national economic situation to that of the individual's situation. The problems of adjustment in life, too, be exemplified.

The adoption of the small family norm, the importance of interpersonal human relationships and other basic values concerning the individuals, the family and the community can also be a component part of the teacher's programme to bring the desired change in the pupils. Since teachers are the ambassadors from a variety of socio-cultural groups, they can take their knowledge of population education back to their pupils and educate them about population related issues and problems.

Basically a teacher is the key person who provides the information to his students so as to meet his future requirements. Teacher can effectively convey the content/concept to the children if he has knowledge about the effect of population on socio-economic conditions and is convinced that population education is a necessary concern of today. For example if a teacher is not clear about 'population education' concepts and he is not convinced with the importance of the theme it would not be possible for him to teach it to the audience. So it is necessary for a teacher, who is assigned the job of teaching population education concepts, to be able to have full knowledge about the historical background of emerging population education concepts. He should know the techniques of conveying the message of population education effectively and efficiently.

1. He should have the latest knowledge about the population growth rate, existing facilities i.e education, health, food and housing for the population, responsibilities of the parents for meeting the requirements of their children about education, food, shelter, clothing and other facilities.
2. He should keep his eyes on the current population changes and its effect on the society. He should discuss the population problems with his students. He must encourage his students to conduct surveys about the family requirements. He should compare the requirements of a small family with that of a large.

3. One important role the teacher can play is that he should bring a positive change among the parents/children/society so that they may think about the population problems and their effects on the quality of life.

In brief, since teacher is a person who has a great influence on the people and receives respect from them for the job he does, therefore he should be given up-to-date knowledge about population education and be encouraged to serve the people waving problems related to family planning and health etc.

4. TEACHER TRAINER

For producing better teacher, teacher-training institutes have to work hard. Provision of highly educated teacher-trainer is the first requirement of a good teacher training institute. The other important requirements are: the provision of well designed teacher-education curricula, educational equipment and technology, the use of modern teaching strategies and research activities.

Our teacher-trainers traditionally prepare the teacher as a person who is meant to preach. Let them be trained as men of action doing things for the betterment of society. For introducing the population education concepts to the prospective teachers, the teacher-trainers are required to:

- a) Provide information about the population's present situation.
- b) Make them aware of the advantages of balanced population growth and the disadvantages/problems of its in-balance growth.
- c) Give them the understanding of the factors/causes and effects of rapid population growth on the natural, economic, socio-cultural resources.

The teacher-trainers should introduce all these activities to prepare the future teachers. Teacher trainer is the key person who can play a significant role for introducing the population education concepts to the teachers under training. Various concepts can be taught under different topics / subjects. Debates, seminars and discussion about different population concepts/problems be appeared in the teacher training institutes and the pupil-teachers be encouraged to participate in such activities. Teacher-trainers can involve the teachers being trained to conduct surveys on the population education oriented topics. In this way student teachers will get direct information about the population problems. Teacher educators should also propagate the cause of population education in general public through seminars, conferences, symposia etc. An independent course on population education can also be included in the teacher-education programmes. Short courses for in-service teachers be conducted for orientation of population education concepts.

5. CURRICULUM AND TEXT – BOOK WRITER

Curriculum is considered to be a body of courses arranged in a sequential order keeping in view the objectives of teachers and community. Curriculum planning is the key for directing the community towards the desired way of life.

Success of the education system of a country mainly depends on the teachers who effectively implement the curriculum through teaching in the class-rooms. What is included in the curriculum? What type of content a text-book contains? Analysis of these two aspects determines the nature and quality of education we want to deliver to the future generation. It is true that the teacher also contributes through the ways of presentation of the material with the help of proper teaching strategies and the aids. But the teacher is bound to follow the curriculum and the content given in the text-book. If nothing about population education is included in the curriculum and text-books, this concept cannot be communicated to the future generation. It is, therefore, evident that curriculum planners and text-book writers must select the appropriate educational objectives to be achieved, and suggest the means i.e contents and methods through which the specified educational objectives can be achieved. It means that introduction or non-introduction of new knowledge/concepts mainly depends upon the will and wish of the curriculum planners and test-book writers. In Pakistan curriculum planners have been very much concerned with the inclusions of population education concepts, issues and trends in different levels of education. Now when the education has been totally shifted to the provinces under 18th amendment the concerned provincial governments are supposed to take immediate measures to include population related concepts and issues with more elaboration right from initial level to higher education level.

From the above described roles of curriculum planners and text-book writers, it is clear that both of these professionals are helpful in introducing the population education concepts effectively. Curriculum planner may choose any one of the appropriate approach for the inclusion of population education concepts in the curriculum at provincial level. Curricula for population education and related issues may be available through governmental and non-governmental agencies, universities, student groups, or teachers unions. Supplemental materials specific to the local situation can also be generated by teachers and students themselves. If new curricula are needed, it may be feasible to collaborate with different specialists from universities, colleges and schools in curriculum development and creating learning and teaching materials. Teachers should be involved in curriculum development, as they often are, so that they are comfortable with the material they will present

6. SUPERVISORS / ADMINISTRATORS

Some officers like Director of Education, District Education Officer or Assistant Education Officer perform two types of assignments i.e supervision and administration. Population Education Programme cannot be properly introduced if these people are not convinced with the theme or philosophy of the programme. If they do not remove the hurdles for the teaching of this concept, it would not be possible to popularize this programme in the educational institutions. Provision of the relevant material and facilities is the main responsibility of the educational administrators. For example, preparation and purchase of instructional material relevant to the population education is possible if the administrator provides the resources in terms of finances or material. The Education Supervisors are supposed to encourage and guide the teachers for the teaching of population related concepts. They may hold refresher courses, educational conferences

and research activities on the population problems to acquaint the working teachers with the new concepts on population education.

The educational administrators conduct the local surveys with regard to the planning for the provision of educational facilities in the areas of their jurisdiction. Such surveys help them in better planning for the provision of educational activities. Implementation of plans is a function of management. Planning and management of such programmes will certainly help in the national development. Both the supervisors and administrators may look at the changes being occurred in the population and prepare plans to meet the requirements of those changes.

Educational Supervisors and Administrators must get training in gathering statistical data about the population, schools teachers, students and facilities available in educational institutions. They should also be able to treat this data and draw conclusions with regard to the future educational demands. These are the persons who can report to the higher officials about the future demands of the era. They will also work with the people of the area to raise their efforts/resources for meeting the requirements.

7. DOCTORS / PARA-MEDICAL STAFF

The contribution made by medical practitioners (Doctors and Para-Medical Staff) to the general health of a population has always been appreciated. Control and eradication of communicable diseases; the spread of public health services; improved environmental sanitation; research break-throughs in preventative and curative medicine; better supply and distribution of food, improvements in the environmental and care about malnutrition and under-nutrition cases are the measures which the medical staff has initiated for the provision of better health facilities. All the above mentioned topics are the areas of study in medical education but these are also integral part of the population education programmes. Doctors and other medical staff are well respected in the society as they serve the population by providing them better health facilities. For example, malnutrition adversely affects the physical and mental development of people, thus undermining their quality of life. Doctors and other personnels of medicine are exerting efforts to combat the problem.

In view of the significant roles played by medical staff for the betterment and welfare of the people living in a society, they can serve as key agents for popularizing the population related concepts. It is expected from them that they would advise the people about the birth control, better health care for mother and child, preventive measures for various diseases and steps for improving the environmental health conditions.

8. POLITICAL LEADERS

Political leaders of the country are bound of providing guidance to the people from all walks of life. They meet the people and discuss the problems with them. They are expected to find the ways to solve educational, policy-makers, executives, evaluators and interpreters etc. They lead the public for solving various problems. They work towards change the minds of the people in accordance with the social demands. They always watch for population changes. They are in a position to guide the people to adopt

desirable measures for the welfare of the population. For example, they assess the educational requirements of the area and then they find out ways and means to meet those requirements. Rapid population growth and availability of the resources in the area such as food, health, transportation, employment etc. are basic concern of the political leaders. They can suggest certain alternatives to solve a specific problem. When political leaders make a visit to an area for sharing the problems with the people, they should also have discussions on population education to sharpen awareness, encourage participation and stimulate the thinking of people with respect to these issues. Political and community leaders have a greater responsibility for promoting the cause of having comfortable houses with all possible amenities of life which will ultimately ensure our collective well-being. In brief, the political leaders are opinion-forming and opinion-changing persons. They can effectively work for inculcating the sound and positive thinking process among the people with regard to the population related problems. Political support, such as national policies, guidelines, and support from ministries of education, health, and population can be of immense help for population education cause. Political commitment can be evidenced in many ways, for example:

- Public acknowledgement by ministries and local officials of the importance of the population education
- Favorable policies and national/local plans, for population education
- Designation of someone at gross route level with responsibility and authority to ensure implementation of these policies and plans
- Provision of financial support, technical equipment, services, and materials for population education programmes

9. RELIGIOUS LEADERS

The religious leaders have tremendous influence over members of their congregations. This influence extends throughout society from local communities to national communities. Through their preaching, imams and Islamic scholars they maintain a powerful channel of coordination with the population. Religious Leaders meet the people for educating them to act upon the religious teachings. People also contact them for knowing the right path to live. Guidance given by the religious people is always appreciated by the people. People do recognize the services and contributions of their religious leaders for leading them to live in a noble and disciplined way. It has been noticed that most of the Governments go to the political and religious leaders for having co-operation on different issues. Most of the governments feel their inability to introduce any new project or theme without the help of the religious leaders. Population planning or population education concepts are still controversial in various countries / cultures / societies like Pakistan. Such leaders are contacted for the legitimacy of such innovation / themes which are to be introduced in the society. People have firm belief in their religious leaders and their leadership. So most of the countries seek their cooperation with regard to the population related concepts. These religious leaders study and express their views about the merit or demerits of introducing these new concepts after consulting the basis and principles of their religious thoughts. If the religious leaders support the new themes or concepts, they are implemented without much trouble. The role of

religious leaders in Bangladesh in addressing the population related issues and constraints are example for other countries particularly for the Muslim countries in the world.

In view of the above discussion, it is clear that religious leaders' support is extremely valuable and effective for introducing the population related concepts. These leaders can change the minds of the people through their writings, lectures, discussions and visits to various gathering or groups of people. Thus, religious leaders are strong sources of propagating the new ideas i.e. population education among the masses.

10. HEAD OF FAMILY

In Asian region, head of a family normally has a greater influence on his family in decision-making. Usually, males are the heads of family in this region. What is said by the head of family cannot be changed, ignored or disobeyed by an other family member. In Asian countries, head of the family possesses the authority to decide whatever is deemed proper for the existence, development and betterment of the family. No one challenges his authority and it has to be obeyed by all means.

As a mean of preventing opposition from parents who do not understand the aims and activities of the population education, it is necessary to get them acquainted with this new idea to obtain desired results. Training of the parents, in general and the heads of family, in particular, be conducted on various aspects of population related concepts. The information about the following concepts will be helpful for maintaining quality of life of the whole family:

1. Family Size and their requirements
2. Food Habits (Balanced Diet)
3. Health Facilities (Environment, Child Care etc.)
4. Educational Opportunities
5. Economic Considerations

All such topics be discussed with the heads of families and they may be helped to resolve their problems concerning the quality of life of their family members.

11. MEDIA PEOPLE

According to M.G. Luhan, content of a message and the medium of communication are equally important. We may plan the best schemes, if there is no communication, the schemes fail. So communication is very essential and mass media are the most effective means of communication. The tremendous growth of the mass media has contributed greatly to the increasing diversity of the experience to which the adults and children are exposed.

Journalists, T.V. Artists Cartoonists, Programme Producers and other concerned with the Media are the Change Agents in the society. They educate the people concerning different themes and change their minds as desired. People are highly influenced through media. For example, most of the people enjoy watching dramas on T.V. Various informative programmes, such as seminars, discussions, lectures and recreational programmes are the areas of interest for many people. T.V. and Radio Programmes have been useful devices for propagating, popularizing and educating the population-related themes through drama, musical programmes, announcements and lectures. Cartoonists

also effectively express the seriousness of various population problems through cartoons, e.g. showing the over crowdedness on transports (bus, vehicles), in the classrooms and in houses etc.

Journalists can also change the minds of the people through writing about the existing situation of population, future projections about population, future requirements of the population with regard to their education, housing, health and other facilities necessary for better living in the community. Expressing the experiences of other nations regarding uplifting the quality of life and comparing their countries' efforts in this respect will certainly motivate the people to do something for raising the standard of life.

Media people (Artists) can organize exhibitions on population education for communicating different messages. Such exhibitions may include plays, slide shows, films, display of posters and models etc. Such activities will attract a large number of people and they will understand the message of population education.

Examples how media outlets and schools can collaborate to promote family life, reproductive health, and population education and to make it more acceptable to discuss these topics:

- Providing free air time or space for messages to schools, especially for messages created by youth that inform young people about population education
- Enabling children and adolescents in schools to produce youth-oriented newspapers or television and radio shows on family life, and population education.
- Collaborating with schools in organizing discussions or call-in radio or television programmes that include accurate information about family life, and population issues
- Collaborating with schools to address parents with accurate information and guidance on population related issues and problems

12. FAMILY AND COMMUNITY SUPPORT

Family and community members can play an integral part in discussions and sensitization about population topics. Parent-teacher associations, adult education activities, formal and informal presentations, open houses, civic clubs, religious centre, and community group meetings can be appropriate venues for communicating with families and community members around these topics. Success is the best advocate. Local interventions that prove to be successful can help gain support from individuals and groups that were initially not supportive. It may not be necessary to achieve full support from all groups before beginning. Resources may be better spent on building evidence of need, interventions that meet the needs and allies that do support it.

13. YOUTH INVOLVEMENT AND PARTICIPATION

Young people – boys and girls representing all sectors of society can be involved in all stages of population programme particularly in its designing, provision, and evaluation. In doing so, they become part of the solution rather than the problem (UN, 2000). They often can identify issues and ideas that others have not considered or find difficult to consider. Young people's participation can also build their sense of ownership. They have tremendous potential to contribute to efforts within and outside of

the institutions i.e. schools and colleges. "Programme planners and international agencies, such as WHO, UNESCO and UNICEF, recommend that the energy and creativity of young people be involved on many levels: needs assessments; identification of problem areas; design and planning; promotion of programmes; implementation; teaching; counseling; organizing activities; Whitman, 1997, p. 23).

There are numerous ways in which young people can be involved:

- As peer educators and counselors
- As planners and participants in school and community projects
- As writers, speakers, mobilizers, parent educators, and distributors of resources
- With various other tasks in planning, implementing, and evaluating needs and progress related to programming

14. REACHING OUT-OF-SCHOOL YOUTH.

Involving the community can help affect young people who have dropped out of school. Schools can co-ordinate activities with other sectors and plan joint projects, for instance, local entertainment centers, or law enforcement officials. Peer initiatives, which can be based at schools, have been successfully used to identify and contact out-of-school youth and street children (Senderowitz, 1997a). In some communities, schools have organized health fairs that brought together parents, students, other community members, and out-of-school youth together. These types of events are particularly valuable in countries with a large proportion of out-of-school youth (Birdthistle & Vince-Whitman, 1997). In some communities, religious services include information about the importance of family planning. Schools may also use media, such as radio broadcasts, to reach out-of-school children. The consequences of not reaching out-of-school youth are likely to negatively affect in-school youth as well as the community as a whole.

15. SUMMARY

The population education programmes place great emphasis on the process through which the people decide their population related behaviours. In fact, these programmes aim to develop the type of people who can understand, observe, describe and predict what changes in the population mean; what is the effect on society of having many more youngest people than older people in the population; what affects the growth of population more-birth rates or death rates, etc?

There are many methods to introduce the concepts of population education; through formal and non-formal education systems and through the people who have direct influence on the people. But these influential people who may be named as "Change Agents" should know that population education play a significant role in the national development. These Catalytic Agents or the Key-personnel are expected to work continuously till the desired results are achieved. The responsible persons who could influence the masses regarding population related issues are: teachers, text-book writers, Curriculum planners, educational administrators, supervisors, religious and political leaders, medical personnel, media people and heads of the families. These people are in a

position to introduce the population education concepts effectively through adopting various activities and programmes.

SELF ASSESSMENT QUESTIONS

Essay Questions

1. How would you define population education? And why should we introduce this concept in the society?
2. Population education is a base for the national development. Discuss.
3. Prepare a list of main population problems which people think as more important. Describe the implications of such problems for the societal development.
4. Suggest the steps to be taken by the following key persons for introducing the population education concepts in the society.
5. Suggest the steps to be taken by the following key persons for introducing the population education concepts in the society.
 - a) Teacher Trainer
 - b) Curriculum Developer
 - c) Media Artists

Multiple Choice Items

1. The study of population deals with:
 - a) The size of population
 - b) Distribution of population
 - c) Increase and decreases of population
 - d) All of the above
2. Population education is the educational process whereby individual learn:
 - a) To do mathematical concepts
 - b) The courses of population growth
 - c) To develop confidence in the class
 - d) None of the above
3. In Asian countries, professionals mentioned below are least interested in dealing with the population problem:
 - a) Teacher
 - b) Doctor
 - c) Media Artist
 - d) Person who is illiterate
4. Most effective professional for preparing a large group of people to deal with the population problems is:
 - a) School administrator
 - b) Teacher Trainer
 - c) Teacher
 - d) Shopkeeper
5. Population education prepares and helps the individual for participating in societal development as:
 - a) Adopting Family Planning Measures.
 - b) Producing more children
 - c) Making decisions that are responsible and based on understanding and not ignorance

- d) All of above
6. Key person whose support for introducing the population education concepts is most valuable is named as:
 - a) Media Artist
 - b) Teacher
 - c) Religious Leader
 - d) Text-book Writer
 7. Text-Book writer can effectively introduce population education concepts at school level if he;
 - a) Prepares a separate book on population education
 - b) Add some paragraph in the material already written in the text book.
 - c) Produces the graphic and statistical material in the book
 - d) All of the above
 8. Medical doctor can change the people's minds for accepting the population education concepts if he;
 - a) Serves the people in the town
 - b) Shows the pictures / data about population growth to the people and tells about its consequences.
 - c) Visits the sick people
 - d) None of the above
 9. One of the assumptions underlying the introduction of population education is that teachers and teacher-trainers can play a positive role in;
 - a) Popularizing the adoption of birth control measures
 - b) Convincing parents to produce fewer children
 - c) Creating a sense of population awareness
 - d) a and b
 10. In view of the attitudes of our people towards population planning, it is more desirable to:
 - a) Introduce people through media activities
 - b) Allocate separate staff for teaching population concepts
 - c) Allow political leaders to contact with the people in persuading them to adopt population control measures.
 - d) All of above

True-False Items

- | | | | |
|----|---|---|---|
| 1. | T | F | A teacher is the key person who can effectively provide basic education on population related issues. teacher is the key person who can effectively provide basic education on population related issues. |
| 2. | T | F | Teacher-Trainer adopts the techniques such as debates, seminars, lectures, discussion and others to introduce the population education concepts to the teachers under training. |
| 3. | T | F | Curriculum planning is a best device to prepare the future generation to meet the future challenges of the society. |
| 4. | T | F | Presentation of a paragraph or sub unit to the existing units of curriculum is called as Unit of Study Approach |

5.	T	F	Education Supervisors has no significant role for introducing the population education concepts.
6.	T	F	Medical Doctor is the least concerned with population problems.
7.	T	F	Political leaders play various roles such as thinkers, policy makers, evaluators and interpreters in the society. So they are effective in introducing the population education concepts in the society.
8.	T	F	Radio is more effective media for presenting the population problems as compared to T.V.
9.	T	F	Religious leaders are expected that they should lead the society in accordance with the religious sanctions.
10.	T	F	In Asian region, the head of family possesses the authority to decide whatever is deemed proper for the existence and betterment of the family.

KEY TO SELF ASSESSMENT QUESTIONS

Multiple Choice Items							
1.	d	2.	b	3.	d	4.	b
5.	c	6.	c	7.	d	8.	b
9.	c	10.	a				
True-False Items							
1.	True	2.	True	3.	True	4.	False
5.	False	6.	False	7.	True	8.	False
9.	True	10.	True				

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UNIT 9

RESEARCH IN POPULATION EDUCATION

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INTRODUCTION

In the previous units you have studied various aspects of population education and the modes of integrating these concepts in different education programmes of the country. This unit is an attempt to introduce you to the concept of research and the methods and types of research specially with reference to their application in the area of population education. The main discussions in this unit are as follows:-

1. concept of research
2. types of research
3. process/methodology of research-steps of research process
4. techniques of research - data collection and data processing techniques
5. examples of research studies in the area of population education with discussion on the previous research studies conducted in the field.

OBJECTIVES

It is expected that after going through this unit the readers will be able to:

1. describe the meanings and concept of research with special reference to its need and significance in population education.
2. discuss various types of research and their application in population education.
3. state different steps involved in the process of research and apply this methodology while conducting research studies in population education and;
4. design some research studies in the area of population education.

1. CONCEPT OF RESEARCH

Research is the application of scientific method for the solution of the problems in any field of life. Scientific method, when applied in various phenomena help us in reaching the solution for the problems and in the investigation of truth.

Historically speaking, it is the curiosity of individual that impelled him to observe the forces of nature and ponder over various events. In the beginning researchers used only deductive method, but this method did not help them much. Then came the inductive method for gaining knowledge. This method involves the observation of natural phenomenon and to arrive at the conclusions. With the passage of time researchers mixed these two methods using inducto-deduction method in the investigation of truth and finding new knowledge. It was actually the inductive-deductive method, which lead researcher to the scientific method of research. The steps of the scientific method will be discussed in detail in the coming paragraphs of this unit, but it is to be mentioned here that the scientific method is mostly used by the descriptive researchers and surveyors in different fields of life.

An other set of definitions has attracted the attention of experimenters in the field of research and these definitions focus our attention on the cause and effect relationship. Population Education has also entered into this field of research and a number of experimental designs have been recommended to be used in this area of education. The researchers in this field have recommended a number of experimental designs in Population Education and these will be discussed in detail in the coming sections of this unit.

To sum up, research is the application of scientific method in the solution of various problems that puzzle mankind. And it is an effort to determine cause and effect relationship in the process of the investigation of truth. We shall now discuss different types of research with the application of these types in the area of population education.

2. MAJOR TYPES OF RESEARCH

The discussion in the types of research can be conducted in many ways. Traditionally historical, descriptive and experimental are the three major types of research.

2.1 Historical research

In historical research, the major emphasis is on the types of sources for data collection (i.e. primary and secondary sources) and on the criticism of data (both internal and external criticism). Historical researches can be conducted in the field of population education and this type of researches can be conducted in this area of education for the determination of past trends and characteristics of population.

2.2 Descriptive research

Description research deals with what exists. All types of surveys are included in this type of research. Scientific method can be very usefully applied in this type of research and I am sure that descriptive research can be very fruitfully used in population education. Research studies dealing with the demographic data and studies for the investigation of existing trends of population etc. all fall in this area of descriptive research.

2.3 Experimental research

Experimental research can also be very effectively applied for the purpose of conducting research studies in the area of population education. Herein the main emphasis is on the determination of cause and effect relationship between different variables. Some designs for the conduct of experimental research studies have been proposed in the later part of this unit.

Besides these traditional and general types of researches; there is possibility of many other types of research; the most significant of these being the projection types of research studies, wherein an effort is made to project future estimates of certain phenomenon. For example, we can observe population growth over the last few years in a country and can very easily determine the approximate rate of the population increase. This rate of population growth can be applied in the calculation of the estimated population in a country over the future plan period. These projections may be named as trend projections. In this way demographic data can be projected over the plan periods and can be used as base data in different sectors and sub-sectors.

Although different types of research designs can be proposed in this area of education, but it is the job of the researchers to design research studies according to their requirements. It is however, to be mentioned that scientific method can be used in all the types of research studies mentioned above.

3. SCIENTIFIC METHOD

Scientific method involves the verification of hypothesis or theory by observation and / or experiment (Good:6). In brief, the scientific method possesses the following features:-

3.1 Purpose

Scientific method deals with problems to be solved. It is, therefore, highly purposive since there are specific goals that are related to activities of persons, who engage in it.

3.2 Theory

There is usually a step which involves a "theory" or "hypothesis" or hypotheses concerning the explanation of a phenomenon or solution of a problem.

3.3. Verification

The establishing of a hypothesis or of a theory is followed by observation and / or experiment. Scientific method is distinct from speculation in the sense that it consists of tests in reality.

Scientists have enumerated different steps of scientific method as they are used in the conduct of a research. The three steps mentioned above indicate a process which can be said to have the following steps:

4. STEPS OF SCIENTIFIC METHOD

- i. Identification and definition of the problem
- ii. Formulation of hypothesis
- iii. Collection of preliminary data
- iv. Retaining one hypothesis and rejecting others
- v. Collection of detailed data
- vi. Analysis and interpretation of data
- vii. Drawing conclusions
- viii. Verification/testing the hypothesis

It needs to be clarified here that there is no such thing as a scientific method. It is actually the scientific approach which is used in each field of study. Some elements are common in the methods of research applied in various fields, therefore, the research techniques used in other subject. However, the research studies based on observation and experimentation adopt a common approach sometimes called scientific approach or hypothetic-deductive approach and the same approach can also be successfully used in the conduct of research studies in education and its allied fields like population education.

Self Assessment Questions -I

- a. Define research _____

- b. Name the different types of researches which can be used in population education.

- c. Define Scientific method _____

- d. Name different steps of scientific method.
i. _____
ii. _____
iii. _____
iv. _____
v. _____
vi. _____
vii. _____
viii. _____

Activity No. 1

- a. From the area of population education, propose a topic which you can take up for the conduct of a research in this area.
- b. What type of research can be designed to conduct the study proposed above?

4.1 Survey Studies and Population Education

In the previous part of this unit, you have studied that different type of research studies can be conducted in the area of population education. Out of three major types of researches i.e. historical, descriptive and experimental. Descriptive type of researches are usually designed while conducting research in the area of population education. Survey study is one of the main type of descriptive and other descriptive studies being developmental studies and interrelationship studies. Here, we shall discuss the survey study as the main research technique to be used in the area of population education.

As you have studied that the survey studies are designed to collect data from a number of cases at a particular period of time and the main objective is to make generalizations which are based on the data collected from these cases.

In a survey study, we manage to apply the scientific method and it is applied almost exactly according to the procedure/ steps mentioned in previous section of this unit.

In educational research, there may be school surveys, household surveys, public opinion surveys, community surveys, documentary analysis and follow-up-studies. All these types of surveys can also be conducted in population education where-in the scientific method is applied by developing hypotheses or starting with a problem statement, collecting the data, verifying the hypotheses and drawing the conclusions. This type of survey studies are mostly conducted in the area of population education and some of the examples are presented as follows:

4.2 Example of a survey study in Population Education

The 2006-07 Pakistan Demographic and Health Survey (PDHS) is the fifth in a series of household demographic surveys conducted by the National Institute of Population Studies since 1990. However, The PDHS 2006-07 is the second household survey conducted as a part of the worldwide Demographic and Health Surveys programme. The 2006-07 PDHS supplements and complements the information collected through the census and demographic surveys conducted by the Federal Bureau of Statistics and other data producing departments. It updates the available information on population and provides guidance in planning, implementing, monitoring and evaluating population programmes in Pakistan.

The information on socioeconomic characteristics of households and respondents including age, sex, place of residence and educational status has been collected.

Major findings of the survey are as follows:

- i. The study shows that education is one of the major social factors that influence a person's behaviour and attitude. In general, the higher the level of education of women, the more knowledgeable she is about the use of health facilities, family planning methods and health of her children.
- ii. Survey results shows that more than half of women and about one-third of men in Pakistan have no education. Overall females are less educated than males. Twenty-seven percent of female and 33 percent of males have attended primary school only, 8 percent of females and 13 percent of males have attended middle school only, and 7 percent of females and 14 percent of males have attended secondary education only. Overall 6 percent of females and 10 percent of males have attended higher than secondary education.
- iii. Data on net attendance ratios (NARs) of household population reveals that 66 percent of primary-school-age children are currently attending primary school. At the same time, only 27 percent of middle/secondary-school-age youth are attending that level. The NAR is higher among males than females at both primary and middle/secondary levels. Attendance ratios are much lower in rural than urban areas and are the lowest in Balochistan and highest in Punjab.

- iv. Data on educational attainment show that overall 65 percent of women in Pakistan have no education at all, 14 percent have attended primary school only and 6 percent have reached middle school only, while 8 percent have some secondary education and 6 percent have reached class 11 or higher.
- v. The relationship of education and employment reveals that, at the time of survey, Only about one-fourth of ever married women were currently married and an additional 4 percent were not employed but had worked sometimes during the preceding 12 months.

4.3 Some Titles of Survey Studies in Population Education

Some titles of the survey studies in population education are presented as follows:-

1. Akhlaq Ahmed, Difference in the Fertility of Salaried and nonsalaried Groups in the population of Lahore. Social Sciences Research Centre, Punjab University, Lahore.
2. S.M.A Zaidi, Differential Fertility of First Marriage Women. S.S.R.C, University of the Punjab, Lahore.
3. Abdul Hamid Paul, Difference in Fertility in Various Occupations in a Sample from Lahore population Social Science Research Centre, University of the Punjab, Lahore.
4. Dr. Mahmood Sotondeh Zand, The Economic Value of Children, National Institute of Population Studies, Islamabad.

Activity No. 2

Propose two topics for studies in the area of Population Education in the context of population growth rate in Pakistan

4.4 Evaluation Studies in Population Education

Evaluation study is a type of survey, but it can also be a type of follow-up. Some studies of this type have also been conducted in Pakistan in the area of population education and following are some of the titles of such evaluation studies.

1. Evaluation Study on Population Education Project through Formal School System. Population Education Cell, Curriculum Wing, Ministry of Education, Islamabad.
2. M. Naseem Iqbal Farooqi, Evaluation of Population Welfare Communication Programme of Pakistan. N.I.P.S, Islamabad, 1988.
3. Michael and Yameena Mitha, Evaluation of the Outreach Component of the Family Welfare Centres in Pakistan. NIPS, Islamabad. 1986.

5. EXPERIMENTAL RESEARCH DESIGNS

Experimental research designs may be of three main types.

- i. Pre-experimental designs
- ii. Experimental Designs
- iii. Quasi-experimental designs

5.1 Pre-experimental designs

These designs can be used in different contexts in population education. Such designs provide descriptive information about the outcomes of the programme but do not enable the evaluator to firmly ascribe these to the programme. Some of the pre-experimental designs may be as follows:

1. One-group post test design

O

The treatment, intervention or programme is given to a group. After a period of time an observation (O) is made. The change or effect is associated with the intervention or treatment (x).

2. One group pre-test-post-test design

O₁ x
O₂

There is an observation (O) in the beginning. Then the treatment, intervention or programme (x) is given to the group. After a period of time another observation (O) is made. The difference between (O₁) and (O₂) i.e. (d = O₂ - O₁) is noted and it is associated with the treatment (x). Thus a better association of cause and effect relationship is determined.

5.2 Experimental Designs

3. Post-test control group design.

(R)	Experimental group	R	X ₁	O ₁
(r)	Control group	R	X ₂	O ₂

Two groups - a control and an experimental group - are randomly (R) made and two separate treatments X¹ and X² are given and then given the same post test after a given period of time. The observations of each group are noted as O₁ and O₂. The significant difference between O₁ and O₂ (d = O₂ - O₁) is associated with the superiority of one treatment over the other.

4. Pre-test - Post-test control group design

(R)	Experimental group	O ₁	x	O ₂	O ₁	x	O ₂
(R)	Control group	O ₃	x	O ₄	O ₃	x	O ₄

This is an ideal experimental design, though not always feasible. In this design two separate treatments are given to both the groups. The difference between O₁ and O₂ (d₁), is associated with the change or effect in the case of randomly selected experimented group (i.e. d₁ = O₂ - O₁), whereas the difference between O₄ and O₃ (d₂) is associated with the effect in randomly selected control group (i.e. d₂ = O₄ - O₃). The real difference (D) is the difference between d₁ and d₂ which can be very clearly associated with the superiority of one treatment over the other.

5.3 Quasi-experimental designs

5. Time series design

One of the Quasi-experimental designs is the time series design as illustrated below

O O O X O O O

The group is compared to itself. The use of the design in this figure makes it possible to separate the reactive measurement effects from the effects of x.

We can go on proposing such other designs for the evaluation of populations-education programmes, but for the sake of understanding the concept of the experimental designing the above five designs are sufficient.

Self Assessment Questions – II

1. Name three types of experimental designs
 - a. _____
 - b. _____
 - c. _____
2. Propose an experimental research topic in the area of population education.

3. Propose the design diagram for the above mentioned experimental research.

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