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Training Programme

On

Health Programme Management

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Prepared & Conducted by:-
Jimma Institute of Health Sciences (JIHS)
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CHRISTIAN RELIEF AND DEVELOPMENT ASSOCIATION

TRAINING DEPARTMENT

CCRDA

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HEALTH SITUATION IN ETHIOPIA

BACKGROUND

Ethiopia has an area of about one million square kilometers which is composed of both highland and lowland areas. According to the 1994 estimates of the Central Statistical Authority (CSA), the current population of Ethiopia is 61.7 million of which more than 86 percent live in rural areas. Approximately 45 percent of the population is under 15 years of age. The general population is growing at a rate of 3.1 percent per annum. The Government system is organized along a Federal line. The economy is agrarian and accounts for 51% of the gross domestic product (GDP). The estimated per capital GNP was USD 110 in 1996. Poverty is widespread and over half of the population lives under the poverty line. Access to social services is low. The overall gross school enrollment ratio for grade 1 - 8 is 30% (ESDP 1998).

HEALTH STATUS

Relative to other low-income countries, Ethiopia has extremely poor health status, which is largely attributable to potentially preventable infectious diseases and nutritional deficiencies and a high rate of population growth. Regarding vital events of the country, the 1999 Ministry of Health (MOH) report indicates that the infant mortality rate (IMR) is estimated at 105 per 1,000 live births and the child mortality rate (CMR) at 172 deaths per 1,000 live births and the maternal mortality rate (MMR) at 560 - 850 per 100,000 live births. The crude death and birth rates are 14.8 and 44.5 per 1,000 population, respectively. The total fertility rate (TFR) for women between 15 - 49 years of age is 6.74 child per women and contraceptive prevalence rate is 11%. The 1994 World Development report indicates that life expectancy at birth for male and female is 47 and 54 years, respectively.

Ministry of Health and UNICEF reports indicate that 75 to 80% of the endemic diseases in Ethiopia are communicable. The major health problems include Helminthiasis, malaria, acute respiratory infections, diarrhea diseases, tuberculosis, and sexually transmitted diseases, the most serious of which is HIV/AIDS. According to these reports 60% of the Ethiopian population is affected by malaria which now leads the list of major killing diseases in the country.

Diseases that affect children under the age of 5 years are (ARI, diarrhea diseases, nutritional deficiencies and measles). About 30% of deaths are caused by illnesses which are vaccine preventable. A lot effort has been made to increase the coverage of the immunization in the country. However, still it is very low.

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Malnutrition occurs at all ages but it is mostly serious in childhood and it is also preventable to a great extent if there is appropriate public health intervention. One of the intervention strategies is nutrition education.

The most common forms of nutritional problems in Ethiopia are Protein Energy Malnutrition (PEM), Vitamin A Deficiency (VAD), and Iodine Deficiency Disorder (IDD). A survey undertaken by the Central Statistics Authority (CSA) in 1995/96 indicated that 64.9% (68.1% rural and 56.3% urban) of children under 5 years of age are stunted (chronic malnutrition), 10.8% (11.1 rural and 10.1% urban) are wasted (acute malnutrition) and 45.9% are under weight (35% urban and 50.7% rural).

According to the MOH report 80% of Ethiopian women receive no antenatal care. Each year more than 17,000 women die of complication associated with pregnancy and child birth.

HEALTH INFRASTRUCTURE

The Ethiopian health care delivery system is unevenly distributed, inequitably staffed, under, funded and under utilized. Existing health facilities are in a general state of disrepair; an assessment of a sample of health facilities in 1995 indicated that 47% of hospitals, 33% of health centers and 47% of health stations required major repair or total replacement of the facility. Due to poor procurement and distribution systems basic drugs, especially public health facilities, remain scarce. Inadequate and poorly maintained infrastructure and equipment and the unavailability of drugs and pharmaceutical supplies have compromised health services quality.

Total outpatients utilization of government health facilities in Ethiopia suggests that, on average, there be about 0.25 visit per person per year. The overall level of health service coverage is estimated by different sources to be approximately 51 percent. The physical access of the population to health facilities and staff, as illustrated by the facility to population ratio, where 1 hospital: 644,694 people, 1 health center: 214,630 people 1 health station: 18,190 people and 1 doctor: 39,000 and 1 nurse: 13,000 people is low and is one of the reasons for the poor coverage.

Coverage estimates for the individual programmes are very low. The proportion of pregnant women immunized for tetanus is estimated at about 32 percent, while about 47 percent of children in 1995 are estimated to have received OPT_3 immunizations. Antenatal coverage is approximately 30 percent while the proportions of births attended by trained health personnel is estimated at 10 percent. Postnatal visits and family planning services are 3.5 percent and 9.8 percent, respectively (MOH, Health and Health related Indicators, January 1998).

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In 1996 per capital health expenditures were about USD 1.20 and yet the public health facilities are not yet able to utilize this allocated budget fully.

The extremely low health status of the Ethiopian people has been further aggravated by the high fertility rate, drought, famine and internal conflicts which have lasted for over 30 years. Resources for health care, including budget and health personnel, are very limited due to the poor socio-economic development of the country, which has also resulted in the peoples' low standard of living, poor environmental conditions and inadequate health service facilities.

According to the 1978 declaration of Alma-Ata, primarily health care has been accepted as the key to attaining an acceptable level of health by all. Therefore, the PHC is defined as "essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self reliance and self determination. It forms an integral part of both the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family, and the community with the national health system, bringing health care as close as possible to where people line and work, and constitutes the first element of a continuing health care process".

In keeping with this, the Federal Democratic Government of Ethiopia reinforces PHC as a strategy for attaining national health goals. Therefore, the national health policy and strategy was drawn and adopted on the basis of PHC.

The main goal of the health policy and strategy is to provide an acceptable standard of comprehensive primary health service focusing on preventive and promotive aspect to service in an integrated, decentralized and equitable fashion. Primary health care and the focus on preventive and promotive aspects of care shall be realized through the allocation of resources and building community based health institutions.

Based on the policy and strategy, the Government has formulated a twenty-year health development implementation strategy, with a series of five-year investment programmes, of which the first Health Sector Development Programme (HSDP) covers the period 1997/98 - 2001/02.

The six-tier systems will be re-organized into a more practical and functional four-tier system. At the base of the pyramid will be Health Centers with five Satellites Community Health Posts. The first referral level, will be a district hospital followed by zonal and specialized hospitals at the ages. Each level will be standardized in its catchment population, functions and the resources. The administration will be decentralized, democratized and participatory.

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The four-tier systems includes:

- *Primary Health Care Units (PHCUs)*

PHCU comprises a health center (HC) with its five Satellite Community Health Posts (CHP) and serves 25,000 population. The CHP is a non-tier grassroot level formal health unit that complements the services of the HC. A CHP serves 5,000 population.

PHCU is manned by a health team consisting of a Health Officer (HO), Public Health and Clinical Nurses, Mid wives, Environmental health worker and other technical and supportive staff member at a HC level and a primary health worker and other technical and supportive staff members at a HC level and a primary health worker (PHW) , a trained community health agent (CHA) and a trained traditional birth attendant (TTBA) at CHP level. The PHW is the head of the CHP and is accountable to the HC.

The new HC will incorporate the former health centers, health posts and health stations and is organized to provide comprehensive and integrated primary care services as well as minor surgery and life saving emergency operations.

- *District Hospital (DHs)*

A DH is the first referral level for ten health centers (HC) within the four-tier health services system. It has an out-patient and 50-bed capacity in patient facilities that render round the clock services for a catchment population of 250,000.

DH incorporates the former rural hospitals; providing comprehensive out-patient and in-patient services and some serving as a center for basic training and continuing education programmes for front-line health workers.

- *Regional Hospitals (RHs) or Zonal Hospitals (ZHs)*

It will be providing specialist services in the four basic specialties as well as clinical training for nurses, health officers and paramedics.

- *Specialized Hospitals (SHs)*

It will be providing sub-specialist care as well as clinical training for health officers, generalist and specialist doctors.

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The standard requirements in terms of manpower and number of beds have been defined as follows:

Physical Norms by Level of Health Service Delivery

PHCU	District Hospital	Regional Hospital	Specialized Hospital
For 25,000 people 10 beds 13-15 technical staff 12 non-technical staff	For 250,000 people 50 beds 33 technical staff 35 non-technical staff	For 1,000,000 people 100 beds 60 technical staff 35 non-technical staff	For 5,000,000 people 250 beds 120 technical staff 50 non-technical staff

THE ROLE OF NGOs AS HEALTH CARE PROVIDERS

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Background

The non-profit Non-Governmental Organization (NGOs) play a significant role in providing health care to the people of Ethiopia. The major NGO providers are the voluntary organizations which are primary related to churches.

The Catholic and Lutheran Churches started activities in Ethiopia, as early as the turn of the 19th Century (ELS-EECMY) with the promotion of evangelism in cooperation with Ethiopian Christians. The holistic development assistance of these churches tried to meet not only spiritual but also the complete human needs among which education and health services were the most significant. They had started provision of health service in Ethiopia, especially to the poor people.

While the earlier services of these churches and agencies were limited to curative care, at the present time the overall focus of health care programmes has growth to be so comprehensive as to include not only curative but also preventive and promotive services. The other characteristic of these NGO health service programme is their scattered distribution throughout the country. Most of their health institutions both hospitals and clinics are located, in remote rural areas serving the underprivileged population in places where there are not governmental facilities at all. This is considered to be a very important contribution to the enhancement of health services promotion especially for the under-served rural population of Ethiopia.

CRDA's Involvement in Promoting Health Care Services

According to the Disaster Prevention and Preparedness Commission (DPPC), 250 NGOs are currently operating in Ethiopia. One hundred and forty five of these are indigenous while 105 are of international organizations.

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Christian Relief and Development Association (CRDA) established in 1973 by 20 churches to help fight drought and famine. At present it is a membership association of more than 150 registered indigenous and international NGOs and religion based agencies. These agencies undertake diversified activities throughout the country.

CRDA's average annual budget is about Birr 20 million which is secured from its donor partners in Europe, Canada and USA. From this amount Birr 3.7 million is allocated for medicine and health programmes and projects of its members as well as training of health workers and advisory support.

Health projects that CRDA supports include the construction of health posts, training of Traditional Birth Attendants (TBAs) and Community Health Agents (CHAs), promotion of Maternal and Child Health (MCH) and Family Planning Programmes, dissemination of health information and the prevention, control and support care of HIV/AIDS/STDs, tuberculosis and other communicable diseases of public health concern.

Among CRDA member organizations about 70% are involved in the provision of health services.

At present there are around 200 clinics and 8 hospitals operated by CRDA member NGOs and religious based agencies throughout the country. Their implementation target are disadvantaged community groups including destitute mothers and children, the disabled, orphans and people affected by drought/famine epidemics and civil strife. The majority of the health facilities are located in the remotest areas where the community has no access to health services and facilities. It is estimated that at a national level, some 10 percent of the population that have access to health services is served by NGO/Churches managed health institutions. The health services supported by NGO's are integrated programmes with particular focus on curative, preventive and promotional health care services that are compatible with the Ethiopian Health Policies and Guidelines.

The CRDA Health Working Group, composed of representatives of member churches and agencies engaged in health projects has been serving as a focal point for the promotion and coordination of PHC and identifying appropriate programmes approaches in resolving health problems in Ethiopia. It has also been assisting in planning different workshops, seminars and training programmes aimed at improving health care services in the country.

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Notes on Health Planning and Health Services Management



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September, 1999

1. Introduction to Management

Health and Development

Concepts of Development

- **What is development?** It is difficult to define development , however it implies:-
    - Change
    - A process of economic and social transformation
    - Realization of potential of human personality
- The ultimate goal of development is :- improvement of the living standards of people
- What are the basic components of development?
    - Life sustenance(basic needs)
        - Housing
        - Food
        - Water supplies
        - Clothing
        - Transportation
        - Minimal education
    - Self-esteem (feeling of self respect and independence)
        - Degree of exploitation by others
        - Power and influence to conduct relations at equal terms
    - Freedom
        - Inequality
        - Ignorance (lack of skill and education)
        - Unemployment (Joblessness)
    - Health status
    - Women's empowerment
    - Environmental concern
    - Sustainability of development
    - What are the indicators of development?

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- Per-capita income
- Quality of life index
- Levels of industrialization

Major Determinants of Development

The major determinants (or conditions) of development are: economic (output and income); technological (conditions of production); social (level of living; attitudinal (attitudes towards life and work); institutional (organizations, structures, institutions); and political (e.g., development policy choices) [See Fig.1].

These determinants (or conditions) arise from the three major objectives or goals of development. These are: to increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health and protection; to, ensure a rise in level of living including, in addition to higher incomes, the provision of more, jobs, better education and greater cultural and material well-being but also to generate greater individual and national self-esteem; and to expand the range of economic and social choices to individuals and nations by freeing them from servitude and dependence not only in relation to other people and nation-states but also to the forces of ignorance and misery. These three goals are usually referred to as life-sustenance, self-esteem, and freedom [Todaro 1991].

A sustained *rise in national output and income* is one of the conditions (determinants) of growth. Consequently, the ability to provide a wide range of goods as a sign of economic maturity has long been recognized by economists. The same is true of conditions that relate to production. Specifically, advanced technology has been seen as providing an important basis for economic growth in countries.

It is at the same time realized that "technological innovation without concomitant social innovation is like a bulb without electricity; the potential exists but without the complementary inputs, nothing will happen" (Todaro 1991]. In order to realize the potential for growth inherent in new technology, it has been argued that institutional attitudinal and ideological adjustments must be made. The institutional and attitudinal adjustments or conditions are envisaged as necessary to increase labor efficiency and diligence; promote effective competition, social and economic mobility, and individual enterprise; permit greater equality of opportunities; make

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possible higher productivity; raise levels of living and, thus, promote development. Included among institutions are those that are social and political.

Social institutions refer to well-defined and formal organizations of the society that govern the way that society operates, e.g. a class system, private versus communal ownership, or an educational system while political institutions refer to the systems that govern the operation of the government of a particular society, e.g. formal power structures, political parties, mechanisms for getting into power, etc. Attitudinal conditions are those that give rise to the concept of "modern man" and that include such ideals as efficiency, diligence, orderliness, punctuality, frugality, honesty, rationality, change-orientation, integrity and self-reliance, cooperation and willingness to take the long view (as in risk taking).

The six determinants (or conditions) of development are continually interacting in ways that are sometimes reinforcing and at other times contradictory. Therefore, a major puzzle of development is how to adjust these causally interrelated determinants or conditions so that the entire social system would move forward and fast enough to "take off" and be sustained.

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MAJOR DETERMINANTS OF DEVELOPMENT

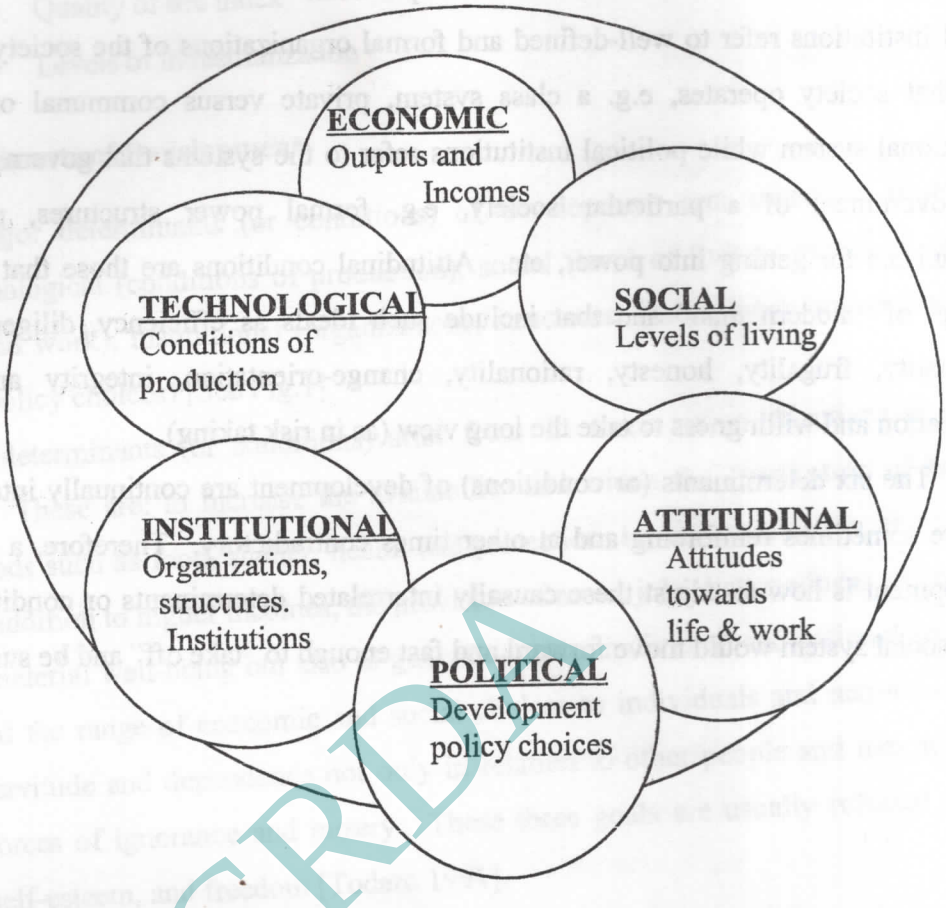


Fig.1 Note;
The development puzzle is how to adjust these causally Inter-related determinants or conditions so that the entire system moves forwards fast enough to take off.

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Determinants of Psycho-Socio-Somatic Health

***Health: -is** a complete physical, mental, social, spiritual and economical well being and not the mere absence of disease and physical infirmity.*

*Health of a particular community or an individual within the community could be affected by a multitude of factors, which as a whole are called **determinants of health**. Since these factors exist within the environment around us our ability to handle the physical (both natural and man-made) and the biological environment is crucial to heath and hence to economic development. These determinants could take the face of immediate, underlying or basic causes of unfit state of health and infirmity. The following could be cited as an example among others.*

The major determinants of psycho-socio-somatic health [See Fig.2] include behavioral, environmental, hereditary (or in a wider context, population) as well as health services factors. This means that the organization of health services per se would not ensure psycho-socio-somatic health.

Changes in human behavior have been found to play a dominant role in health. The changes are more noticeable when an economy makes a transition from traditional cultures to modern cosmopolitan value system or, in economics parlance, when an economy makes a transition from a developing to a developed state. The principal health-related behaviors that change with "the transition" include sports and recreation; alcohol intake; sex and reproductive practices; reading and media contact; type and duration of work; travel and transportation; dietary habits; personal hygiene; and sleep habits. Social and economic circumstances of the individual, family or community group are major determinants of these behaviors. Although all age groups are affected in varying degrees, it is the adolescent and young adult (15 to 24 years), in the urban setting, that is most vulnerable. The behavioral patterns (life styles) not only directly result in disease, but they also make individuals susceptible to other diseases, and injuries, even death.

There are many aspects of the environment that can affect health. The atmosphere (indoor as well as outdoor) contains harmful gases that could increase the risks of such health problems as bronchitis, pneumonia and cancers. The soil in the home or garden and in the farm contains dangerous parasites while the soil elsewhere can contain toxic and radioactive waste.

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Drinking water is a major source of childhood diarrhea, hepatitis and typhoid while rivers, ponds and lakes harbor guinea worm and parasites that cause Shistosomiasis. Stagnant water, or course, provides a good breeding space for malaria mosquito as well as yellow fever mosquito larvae. Uncooked food is a source of food poisoning while badly conserved cooked or processed food could cause botulism.

Insects that live in the house, in the fields around the house, and in the vegetation inside and outside human settlements are carriers of plague, malaria, yellow fever, sleeping sickness, typhus, etc. Domestic animals like dogs could be health threatening (e.g. dog bites/rabies) and, of course, unfriendly animals (reptiles) like snakes constitute a great threat of life. From the foregoing, it can be concluded that our biological environment is crucial to health and economic development.

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MAJOR DETERMINANTS OF HEALTH AND DEVELOPMENT

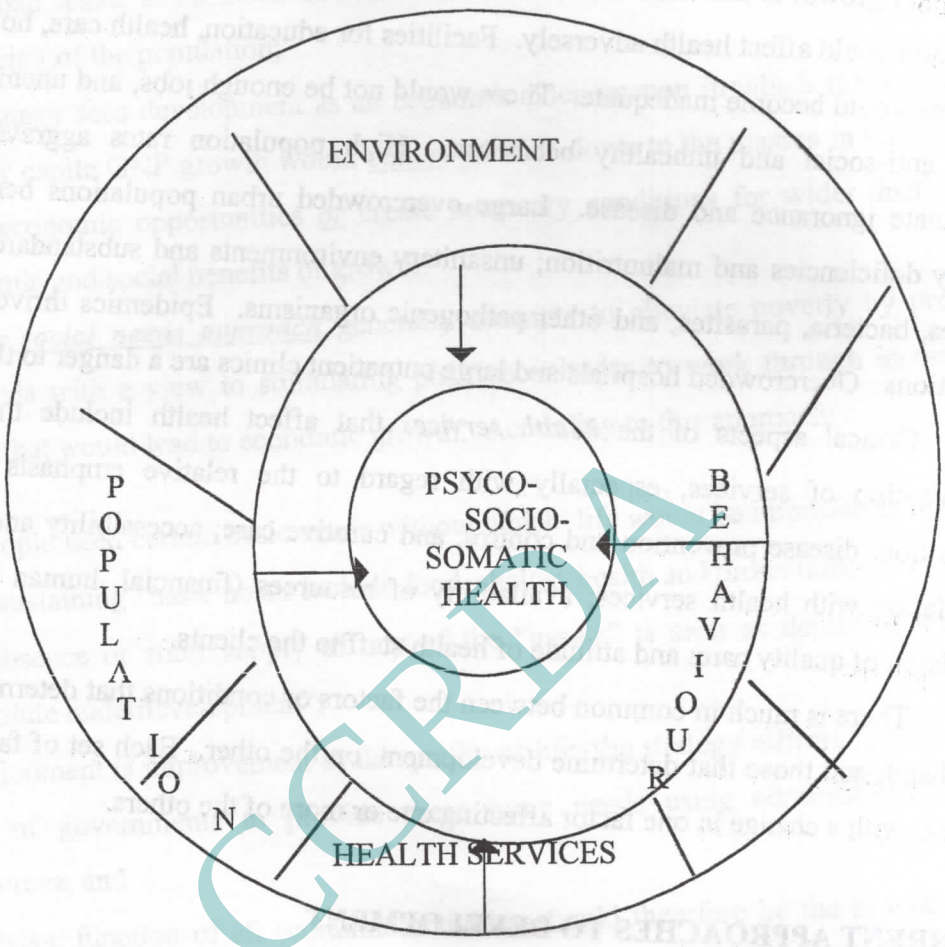


Fig.2.

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The various dimensions of the population (e.g. size, growth rate relative to rates of growth of many other macro variables, age distribution, geographical distribution, literacy rate, skills of the people, attitudes, religious beliefs and practices, customs, etc.) affect health. For example, if population growth is not controlled and, its growth rate exceeds the economic growth rate, the imbalance could affect health adversely. Facilities for education, health care, housing, and water supplies would become inadequate. There would not be enough jobs, and unemployment would breed anti-social and unhealthy behaviors. High population rates aggravate poverty and perpetuate ignorance and disease. Large overcrowded urban populations become targets for dietary deficiencies and malnutrition; unsanitary environments and substandard housing harbor viruses, bacteria, parasites, and other pathogenic organisms. Epidemics thrive in overcrowded conditions. Overcrowded hospitals and large outpatient clinics are a danger to their clients.

Critical aspects of the *health services* that affect health include the following: the organization of services, especially with regard to the relative emphasis given to health promotion, disease prevention and control, and curative care; accessibility and coverage of the population with health services; availability of resources (financial, human and material) for provision of quality care; and attitude of health staff to the clients.

There is much in common between the factors or conditions that determine health, on the one hand, and those that determine development, on the other. Each set of factors constitutes a system with a change in one factor affecting one or more of the others.

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CURRENT APPROACHES TO DEVELOPMENT

The three current approaches to development, each with its own constraints, are **economic growth, basic needs and people-centered approaches** [Fig. 3.].

The ***economic growth approach*** generally tries to stimulate economic growth through massive investments in industries so that poor populations eventually benefit through a "trickle down effect" which can be quite slow. This may not only be morally unacceptable; it could also be politically inexpedient.

Among the specific characteristics of the approach: the development strategy focuses on rapid industrialization, often at the expense of agricultural and rural development;

- the main resource for pursuing the strategy is capital investment;
- the strategy uses the levels and growth rates of real per capita Gross National Product (GNP), in a broad sense, as an index of overall economic development, and therefore, of the social well-being of the population;
- the strategy sees development as an economic phenomenon in which rapid gains in overall and per capita GNP growth would *either* "trickle" down to the masses in the form of jobs or other economic opportunities *or* create necessary conditions for wider distribution of the economic and social benefits of growth.

The ***basic social needs approach*** generally attempts to alleviate poverty by providing basic social needs with a view to stimulating positive attitudes to work through income generating activities that would lead to economic growth. According to this approach:

- all people need certain basic needs without which life would be impossible;
- "life sustaining" basic needs include food, shelter, health and protection;
- the absence or short supply of any of the "basics" is seen as depicting the existence of "absolute underdevelopment";
- development is improvement in the quality of life; the strategy affirms that it is primarily the role of governments to provide these basic needs using administrative and financial resources; and
- the basic function of all economic activities should therefore be the provision, to as many people as possible, of the means of overcoming the helplessness and misery arising from lack of food, shelter, health and protection.

The *people-or human-centered approach* generally mobilizes people for self-reliance through participation in decision making and provides catalytic support for participatory and well-sustained economic and social development activities.

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Again this approach has specific characteristics:

- The strategy's premise is that development has to be moved around people and not people around development;
- Its emphasis is on development *of* the people *by* the people, *for* the people.

  Development *of* the people means that there is need to invest in the education, health care, nutrition and social well being of the people so that they can play ***their full role*** in the country's economic, political and social life.

  Development *by* the people means that there should be full participation of the people, through appropriate structures of decision-making, in the planning and implementation of development strategies, and also that development strategies should provide adequate opportunities for income and employment growth whilst ensuring that people's capacities are properly used and their creativity given fullest expression; and development *for* the people means that everybody's needs should be satisfied and opportunities provided for all.

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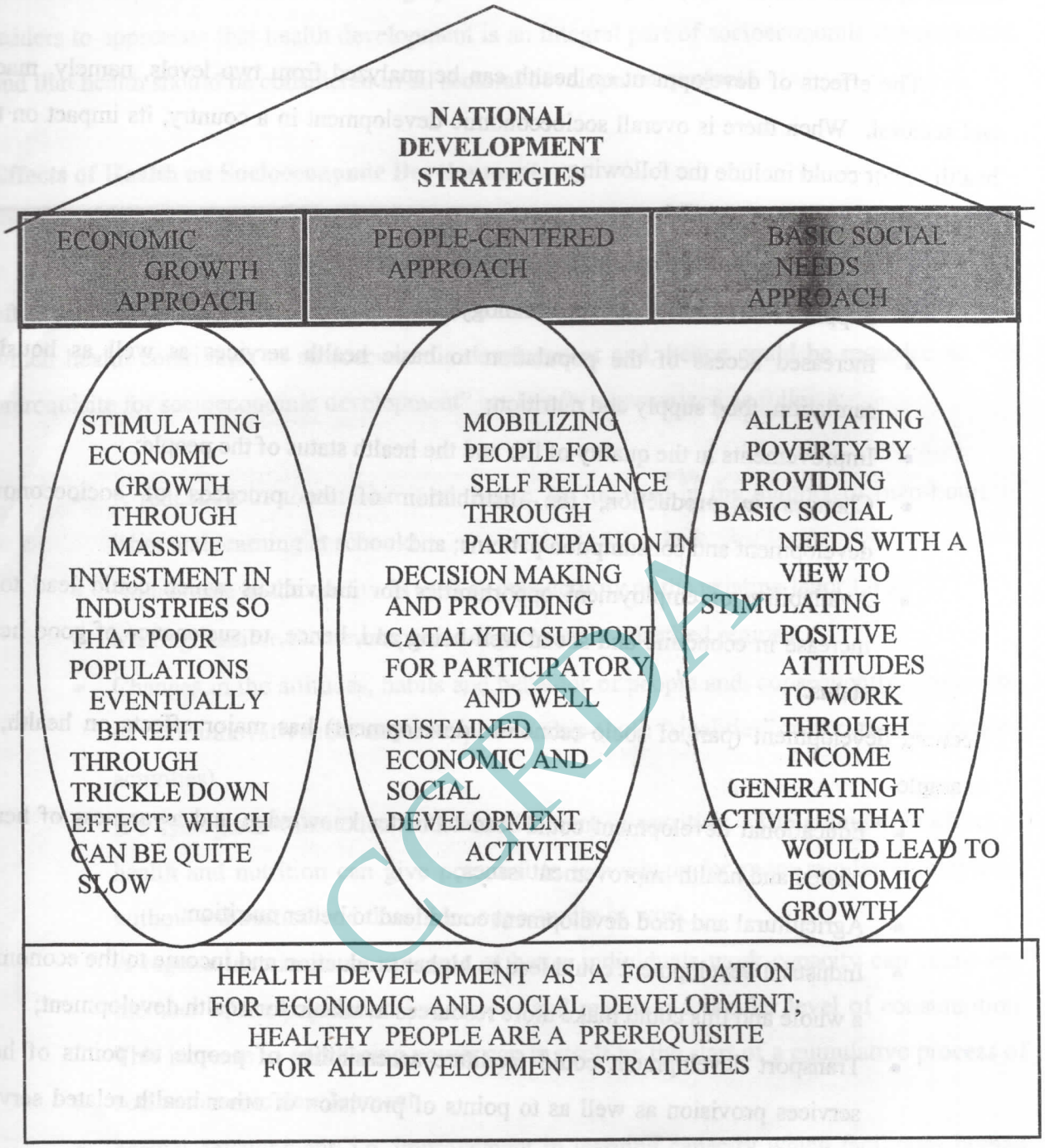

NATIONAL DEVELOPMENT STRATEGIES
ECONOMIC GROWTH APPROACH
PEOPLE-CENTERED APPROACH
BASIC SOCIAL NEEDS APPROACH
STIMULATING ECONOMIC GROWTH THROUGH MASSIVE INVESTMENT IN INDUSTRIES SO THAT POOR POPULATIONS EVENTUALLY BENEFIT THROUGH TRICKLE DOWN EFFECT' WHICH CAN BE QUITE SLOW
MOBILIZING PEOPLE FOR SELF RELIANCE THROUGH PARTICIPATION IN DECISION MAKING AND PROVIDING CATALYTIC SUPPORT FOR PARTICIPATORY AND WELL SUSTAINED ECONOMIC AND SOCIAL DEVELOPMENT ACTIVITIES
ALLEVIATING POVERTY BY PROVIDING BASIC SOCIAL NEEDS WITH A VIEW TO STIMULATING POSITIVE ATTITUDES TO WORK THROUGH INCOME GENERATING ACTIVITIES THAT WOULD LEAD TO ECONOMIC GROWTH
HEALTH DEVELOPMENT AS A FOUNDATION FOR ECONOMIC AND SOCIAL DEVELOPMENT; HEALTHY PEOPLE ARE A PREREQUISITE FOR ALL DEVELOPMENT STRATEGIES

Fig. 3.

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Effects of Socio-economic Development on Health

The effects of development on health can be analyzed from two levels, namely, macro and sectoral. When there is overall socioeconomic development in a country, its impact on the health sector could include the following:

- Availability of resources (especially finance) to embark on health development;
- Supplies of modern medical technology;
- Increased access of the population to basic health services as well as housing, sanitation, food supply and nutrition;
- Improvements in the quality of life and the health status of the people;
- Changes in production, the distribution of the proceeds of socioeconomic development and consumption patterns; and
- Availability of employment opportunities for individuals which could lead to an increase in economic and social well-being and, hence, to sustenance of good health status.

Sectoral development (part of socio-economic development) has major effects on health, for example:

- Educational development could lead to better knowledge and awareness of health-related and health improvement issues;
- Agricultural and food development could lead to better nutrition;
- Industrial development could lead to higher production and income to the economy as a whole and this could make more resources available for health development;
- Transport development could facilitate accessibility of people to points of health services provision as well as to points of provision of other health related services; and
- Rural and community development could lead to a rise in the quality of life of the rural population and, hence, to improvement in their health status.

It is important to emphasize, however, that sectoral development could create (and has actually been found to create) additional health hazards and, thus, frustrate efforts to achieve

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health development. This has been largely due to failure on the part of planners and/or political leaders to appreciate that health development is an integral part of socioeconomic development, and that health should be considered in all sectoral development projects.

Effects of Health on Socioeconomic Development

It is because of the effects of health development on socioeconomic development that it is often said that "health is a prerequisite for socioeconomic development". Some of the ways in which health contributes to socioeconomic development and, hence could be regarded as " as prerequisite for socioeconomic development" are briefly summarized as follows:

- A reduction in absenteeism and, hence, an increase in the number of man-hours of labor and learning at school;
- An increase in the quality as well as productivity of the existing labor force;
- Making feasible the development of previously unsettled regions;
- Changes in the attitudes, habits and behavior of people and, consequently, promotion of both innovativeness and entrepreneurship (both "qualities" foster growth-creating activities)
- It's synergistic interaction with improvement in nutrition. The cumulative effect of health and nutrition can give potential to individuals for more regular employment without exhaustion and thus more opportunity of work.

  A regular income as an outcome of better individuals work capacity can cause any member of the population to increase and maintain a regular level of consumption. This increase in purchasing power can in itself be the start of a cumulative process of socioeconomic development;
- Mental development; i.e. improvement in learning capacity which facilitates human capital development.

The benefits of health for socioeconomic development summarized above only make health a prerequisite (a necessary condition and not a *sufficient condition* for socioeconomic development. Country experiences have shown that healthy people alone cannot bring about the

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six conditions (or aspects) of socioeconomic development that we had presented earlier. The development process requires in addition to healthy people, some other factors for the process to bring about socioeconomic development.

How do we manage these determinants of health?

Tackling of all those determinant factors of health does need an approach, which is tailored towards effective and efficient resources that we have by application and employment scientifically sound **managerial skills.**

Definition of Management: -

Management is the process of planning, organizing, leading, and controlling the work of organization members and of using all available organizational resources to reach stated organizational goals.

Management Vs Administration

Often used interchangeably. Administration is concerned with broad policy while management is concerned with execution of the policy

1.2. IMPORTANCE OF MANAGEMENT

- Managers influence all phases of our modern organizations
- The society demands good managers
- Managerial effectiveness and efficiency are becoming more important in any organization.

Management also has much to offer to individuals (because they earn their living by being managers)

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Organizations and the Need for Managers

For most of our lives, we are members of one or several organizations. The goal or purpose of the organization may vary (a sports team tries to win a championship, a health facility to improve the health of the community), but without a goal no organization has a reason to exist. Without a plan, no organization is likely to be very effective.

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An organization is two or more people who work together in a structured way to achieve a specific goal or set of goals.

Organizations must acquire and allocate the resources necessary to achieve their goals. Finally, all organizations have managers responsible for helping them to achieve their goals. Though these leaders may be more obvious in some organizations than others, without effective management, the organization is likely to founder.

The emphasis in this training will be on the so-called formal organizations - such as businesses, voluntary organizations, government agencies and health facilities - which provide goods and services to their clients and offer career opportunities to their members. Among these organizations, a particular focus will be on those that provide services, such as health care.

Government and business organizations are frequently criticized; such as for being out of touch with the needs of the people, or having leaders who lack ethical standards. Yet we depend on organizations to address the many tasks of sustaining a complex society. Organizations are important because they are social institutions that reflect certain culturally accepted values and needs, and allow us to accomplish goals as a society.

By co-ordinating the efforts of different individuals, organizations enable us to reach goals that would otherwise be much harder or even impossible to achieve. Organizations make knowledge a continuous bridge with the past, present and future generations, and allow us to add to our

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knowledge by developing new and more efficient ways of doing things. Organizations can also provide their employees a source of livelihood and, depending on the style and effectiveness of their managers, perhaps even personal satisfaction and self-fulfilment.

If managers do their job well, the organization will probably achieve its goals. If a nation's major organizations achieve their goals, the nation as a whole is likely to prosper. Yet the criteria for measuring how well managers do their jobs - managerial performance - and how well organizations do their jobs - organizational performance are controversial.

Peter Drucker suggests that these criteria should be the efficiency (which he defines as "doing things right") and effectiveness (which he defines as "doing the right thing") of the manager or organization.

Efficiency - the ability to do things right - is an "input-output" concept. An efficient manager is one who achieves outputs or results that measure up to the inputs (labour, materials, and time) used to achieve them. Managers who are able to minimize the cost of the resources needed to achieve goals are acting efficiently.

Effectiveness, in contrast, involves choosing the right goals. No amount of efficiency can make up for a lack of effectiveness. In fact, Drucker says effectiveness is the key to an organization's success. Thus, before we can focus on efficiency, we must be certain that we have found the right things to do.

This concept will be important when we come to planning and strategic management.

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In summary: -

Managerial Effectiveness: - is the end (goal) concerned with how effective is the program goal achievement. It is measured by how closely organizations come to achieving their goals. It is defined in terms of resource utilization in relation to organizational goal attainment. If organizations are using their resources to attain their goals, then managers are said to be effective.

Managerial Efficiency:- it is the means by which the goal is attained (human, financial, material, time, space and other resources). it is defined in terms of the proportion of total organizational resources that contribute to productivity, the higher this proportion, the more efficient the manager and the more resources are wasted or unused, the more inefficient the manager is.

** *Compare efficiency and effectiveness with goal attainment in the table below.*

Efficient (most resources contribute to production)	Not reaching goals and not wasting resources	Reaching goals and not wasting resources
Inefficient (few resources contribute to production	Not reaching goals and wasting resources	Reaching goals and wasting resources
	Ineffective (little progress towards organizational goals	**Effective (substantial progress toward organizational goals**

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1.3. ROLE OF MANAGEMENT

- Management entails reaching goals
- Essentially, the role of managers is to guide organizations towards goal accomplishment
- All organizations exist for some purpose or objectives and management moves organizations toward these purposes by assigning activities that organization members perform.
- Management strives to encourage individual activity that will lead to reaching organizational goals and discourage individual activity that hinders organizational goal accomplishment
- Management has no meaning apart from goals,
- Management must keep organizational goals clearly in mind at all times

1.4.TYPES OF MANAGERS

A manager may be anyone who is responsible for carrying out the four main activities of management. However, managers may be classified in two ways: by their **level** in the organization (first-line, middle, and top managers), and by the **range** of organizational activities for which they are responsible (functional and general managers).

In the traditional structured hierarchies, the lowest level in an organization at which individuals are responsible for the work of others is called **first-line or first-level management**. **Middle managers** principal responsibilities are to direct the activities that implement their organizations policies and to balance the demand of their superiors with the capacities of their subordinates. Top managers comprise a relatively small group of executives who are responsible for the overall management of the organization. It establishes operating policies and guides the organization's interactions with its environment.

A functional manager is one responsible for a single organizational activity, such as finance or human resource management. The people supervised by a functional manager are engaged in a common set of activities.

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The general manager, on the other hand, oversees a complex unit, such as a company, a subsidiary, or an independent operating division. The general manager is responsible for a diverse collection of activities.

Managers at every level plan, organize, lead, and control. But they differ in the amount of time they devote to each of these activities. Some of these differences depend of the kind of organization for which the manger works. Managers of health centres or clinics, for example, may spend comparatively more time practising medicine than do directors of large hospitals.

Robert L. Katz has identified three basic kinds of skills used by managers: technical, human, and conceptual. Technical skill is the ability to use the procedures, techniques, and knowledge of a specialized field. Human skill is the ability to work with, understand, and motivate other people, as individuals or groups.

Conceptual skill is the ability to co-ordinate and integrate all of the organization's interests and activities. It involves seeing the organization as a whole, understanding how its parts depend on one another, and anticipating how a change in any of its parts will affect the whole.

Health services organization (HSO) managers are:

- Those individuals appointed to positions of authority who direct the work efforts of others.
- Responsible for utilization of resources
- Accountable for specific work results (Regional, District and Zonal health managers / director, matron, head nurse in a hospital etc.)

Attributes common to all, regardless of title or level are:

1) formally appointed to positions of authority by the organization
2) directing work efforts of others,
3) responsible for utilization of the organization's resources, and
4) accountability to supervisors for work results

Non- managers are not formally appointed to positions of authority.

The primary distinction between levels of managers is the degree of authority and the scope of responsibility and organizational activity.

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Another way of differentiating types of managers is by the degree to which they use certain skills: **human relation, technical and conceptual skills.**

Types of Health Services Organizations Managers

Level of position in the org. hierarchy	Type of Manager			Degree of authority and scope of responsibility and activity
High	Senior			Large
Middle	Middle			Medium
Low	First line			Small
	Technical - skills	Conceptual skills	human relations skills	

The degree or intensity for each varies depending on:

- nature of the particular job
- scope of responsibility
- work activity
- number and types and skills of subordinates reporting to the manager

Senior managers use conceptual skills to a large degree in performing their jobs than do the others.

First-line managers tend to use technical skills more than the other two.

As a summary, three main characteristics of management:

1) management is a process or series of continuing and related activities
2) management involves and concentrates on reaching organizational goals
3) management reaches these goals by working with and through people and other organizational resources and it occurs in a formal organizational setting.

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1.5.ROLE OF MANAGERS

A managerial role is the behavioural pattern expected of someone within a functional unit. Roles are thus inherent in functions. Henry Mintzberg made an extensive survey of existing research on the subject of managerial roles. He concluded that all managers have formal authority over their own organizational units and derive status from that authority. This status causes all managers to be involved in interpersonal relationships with their subordinates, peers, and superiors, who in turn provide mangers with the information they need to make decisions. Mintzberg defined these interpersonal, informational, and decision-making roles as "organized sets of behaviours". The ability to recognize the appropriate role to play in each situation and the flexibility to change roles readily are characteristics of the effective manager.

Three routine interpersonal roles - figurehead, leader, and liaison - help managers keep their organizations running smoothly. The figurehead role requires a manager to perform ceremonial duties as head of a unit, such as greeting visitors, and making speeches at organizational events. In this role, managers are symbols who personify, for both members and outside observers, an organization's successes and failures. In the leader role, managers are expected to be responsible and accountable for their subordinates' actions as well as their own. In fact, their subordinates' success or failure is a direct measure of their own success or failure. They are expected to accomplish more than non-managers do since they have subordinates and other resources.

The liaison role requires managers to work with everyone inside or outside the organization who can help them achieve their organizational goals. All effective managers "play politics" in the sense that they develop networks of mutual obligations with other managers in the organization. They then draw upon these relationships to win support for their proposals or decisions and gain co-operation in carrying out organizational activities.

In Mintzberg's three informational roles - monitor, disseminator, and spokesperson - managers receive and communicate information. The monitor constantly looks for useful information both within and outside the organization. The disseminator distributes information to subordinates to assure that they can carry out their duties. The spokesperson transmits information to people outside the work unit, keeping supervisors informed or representing the organization in dealing with the external environment.

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Using the information they obtain, managers also function in Mintzberg's four decision-making roles. The entrepreneur works to improve the work unit by initiating a new program or project. The disturbance handler detects problems and decides on and implements solutions. The resource allocator prioritizes tasks and makes decisions regarding the use of limited resources to meet conflicting needs and to achieve goals. The negotiator resolves disputes within the organization and negotiates agreements with outside organizations.

To a great extent, effective managers are made, and not born. Management skills can be learned by people of all backgrounds. However, J. Sterling Livingstone suggests that successful managers tend to share the following three qualities:

1. ***The need to manage.*** Only people who want to affect the performance of others and derive satisfaction from doing this are likely to become effective managers.
2. ***The need for power.*** Good managers have a healthy need to influence others. To do this, they rely on their superior knowledge and skills, rather than the authority of their positions.
3. ***The capacity for empathy.*** Effective managers are also able to understand and cope with the often unexpressed emotional reactions of others in the organization in order to win their co-operation.

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1.6.The management tasks, management functions and process

Management has been called "the art of getting things done through people". This definition, by Mary Parker Follett, calls attention to the fact that managers achieve organizational goals by arranging for **others** to perform whatever tasks may be necessary - not by performing the tasks **themselves**. Management is that, and more. No single definition of management is universally accepted. In addition, definitions may change as the environments of organizations change.

A process is a systematic way of doing things. A classical model of the management process was developed at the end of the nineteenth century and is still in use today. The four main management activities, according to this model, are 1) planning, 2) organizing, 3) leading, and 4) controlling.

The Interactive Nature of the Management Process

Planning implies that managers think through their goals and actions in advance, and that their actions are based on some method, plan, or logic rather than on a hunch. Plans are the guides by which 1) the organization obtains and commits the resources required to reach its objectives; 2) members of the organization carry on activities consistent with the chosen objectives and procedures; and 3) progress toward the objectives is monitored and measured so that corrective action can be taken if progress is unsatisfactory.

The first step in planning is the selection of goals for the organization. Then objectives are established for the organization's sub-units - its divisions, departments, etc. Plans made by top management for the organization as a whole may cover periods as long as five or ten years. Planning at the lower levels, by middle or first-line managers, covers much shorter periods. Such plans may be for the next day's work or for a two-hour meeting to take place the next week.

Organizing is the process of arranging and allocating work, authority and resources among an organizations members so they achieve an organizations goals efficiently. Managers must match an organization's structure to its goals and resources, a process called organizational design.

Leading involves directing, influencing, and motivating employees to perform essential tasks. While planning and organizing deal with more abstract aspects of the management process, the activity of leading is very concrete: It involves working with people. By establishing a proper atmosphere, managers help their employees to do their best.

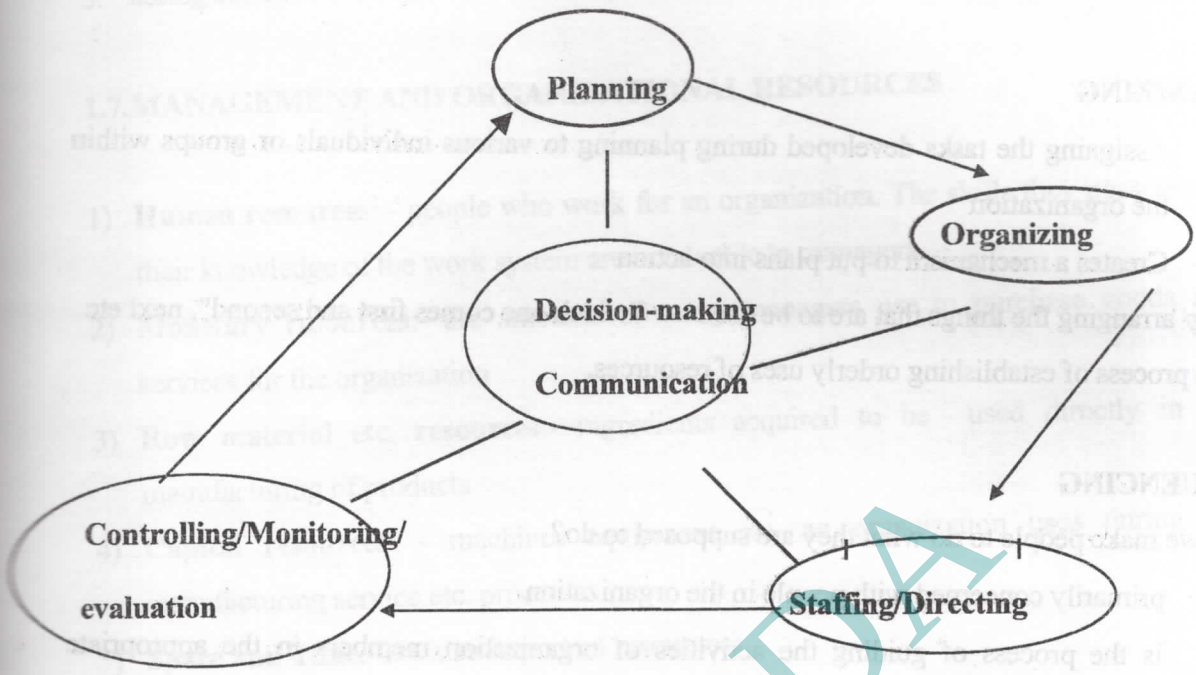
Controlling involves making sure the actions of the organization actually move it toward its stated goals. Controlling includes four main elements: 1) establishing standards of performance, 2) measuring current performance, 3) comparing the performance to established standards, and 4) taking corrective action if any deviations are detected. Through the controlling function, the manager keeps the organization on its chosen track.

These four activities are, in practice, interactive functions. Although the ideal sequence is a clockwise rotation among the activities of Figure I.A.1, the reality is that various combinations of these activities actually go on simultaneously.

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In summary

There are four basic management functions or activities that make up the management process.



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1. Planning:

- Choosing tasks **(what?)** that must be performed to attain organizational goals.
- Outlining **how? When? Where? Why? Who?** etc tasks must be performed
- Focuses on attaining goals
- Important for economic use of resources (scarce resources) at our disposal and is important as a basic of decision-making.
- Identify the constraints and make the choices among the various ways.

Planning is thinking ahead: **the future is uncertain and therefore assumptions exist in planning, depending on the information at hand.**

—> The longer the future time consideration is taken, the less likely is the precision.

TIME DIMENSION OF PLANNING

1. Short term (1-2 years) --> Operational plan
2. Intermediate term (3-5 years) =strategic plan
3. Long term plan (5-10 years)

2. ORGANIZING

- Assigning the tasks developed during planning to various individuals or groups within the organization
- Creates a mechanism to put plans into action

Preparing/ arranging the things that are to be used---> "which one comes first and second", next etc

It is the process of establishing orderly uses of resources.

3. INFLUENCING

How do we make people to do what they are supposed to do?

- primarily concerned with people in the organization
- Is the process of guiding the activities of organization members in the appropriate directions (toward goal attainment)?
- the ultimate goal is to increase productivity

Activities in influencing

1. Leading (leadership)
2. Motivation ---> promotion, salary increment, transfer, rewards etc.
3. Working with groups --> team work /team spirit
4. Communication ---> upward, downward, lateral etc.

= If no communication, the organization loses its unity.

4. CONTROLLING

What is going on in the organization? - Normal or abnormal way? - As expected or not (unexpected)?

==> Making things sure that they are going on as they are supposed to be, i.e., as planned.

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Three Parts:

1. Measurement of performance
2. Comparison of the observed with the expected standard that was established
3. taking corrective actions

1.7.MANAGEMENT AND ORGANIZATIONAL RESOURCES

1) **Human resources**: - people who work for an organization. The skills they possess and their knowledge of the work system are invaluable to managers.
2) **Monetary resources**:- are amounts of many managers use to purchase goods and services for the organization
3) **Row material etc. resources**:- ingredients acquired to be used directly in the manufacturing of products
4) **Capital resources**: - machines equipment etc. an organization uses during the manufacturing service etc. process.
5) **Space and Time**:- are also important resources)
6) **Information**
7) **Technology**

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2.1.2. Development of Formalized Planning

Influences:

a. Planning as a separate activity in organizations, has been the result of the growth of business from small family concerns to large organizations (Multi-billion Multinational etc.)

b. Second influence came from the rise of state economic planning, initially in the USSR following the Russian revolution. The attempt to build an economy based on nationally determined economic plans resulted in a major development of formalized state planning (e.g. UK, USA-Roosevelt)

c. Third influence came during the Second World War, when the shortages caused by the wartime economy, together with the specific needs of a country at war, led to centralized controls in the UK.

In the period following the Second World War three major trends can be discerned which held further implications for the rise in planning.

- Firstly, the reconstruction of Europe after the war inevitably involved major state intervention in the economies of the European countries.
- Secondly, in some countries-notably the UK-shifts in political power and ideology led to an acceptance of government responsibility for the provision of certain social welfare services, including health and education, on a scale that required long-term decisions to be taken.
- Lastly, the derive for the independence of colonies during the post-war period gave impetus to the need to develop clear strategies for economic development.

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2.2. General Characteristics of Planning:

A plan is a course of action one intends to follow in order to solve a problem. It ensures that objectives are set to deal with problems and to make best use of available resources. A plan also provides the opportunity to consider all options available for the performance of tasks in response to needs. Planning may be thought of as a process both at the central and at the peripheral levels. At the central or policy-formulation level, a plan considers the broad outline of what needs to be done and the resources that must be committed at the national level to enable policy objectives to be achieved. On the other hand, at the peripheral level, details of actual

tasks to be carried out, and who is to perform them, must be considered in the face of real everyday problems of resources and organizational difficulties. Planning at the periphery, viz., at the district or community level, needs to be more pragmatic and less conceptual than at the national or regional level. Planning at the central and peripheral levels must not be considered as separate exercises because information obtained from the periphery is required for central planning. Similarly, national guidance and policy are also needed in peripheral planning. Planning based on needs identified at the periphery is sometimes referred to as "Bottom-up" approach planning.

2.2.1. The planning process

Planning for the future allows you to take a close look at your organization (program), goals, what organizational strategies and activities are needed in order to achieve the desired goals. Plans therefore, answer the following questions:

- Where are we now? (Assessment)
- Where are we going? (Objectives, priorities, targets, decisions)
- How are we going to get there? (organization and management) (Strategies, efficient implementation method and activity)
- With what? (how will the organization finance the program) (Resources)
- How do we know whether we are progressing? (Monitoring)
- How do we know whether we reached there? (Evaluation)

Planning thus covers a wide range of tasks, from the setting of organization-wide goals for the distant future to the detailed scheduling of activities to be carried out next year.

2.3. Purposes Of Planning

- **Protective purpose**: - to minimize risk by reducing the uncertainties and clarifying consequences of related management actions.
- **Affirmative**:- to increase the degree of organizational success
- **Coordination**:- to establish a coordinated effort within the organization

The fundamental purpose of planning is to help the organization reach its objectives.

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2.4. Advantages and Potential Disadvantages of planning

A formal planning system can have dangers as well as advantages, and these need to be recognized and avoided. One possible problem of "over-planning" may be that there is little scope for flexibility and innovation after the plan is written. Alternative approaches for solving a problem may be forgotten in the bustle of making a decision to do something. Good ideas may have no mechanism for being brought forward and put into action. People may feel there is little scope for innovation and creativity locally. Another problem is that too many people may be involved. Alternatively, inappropriate people may be involved. This is particularly likely when planning is over-centralized and done without the participation of local people or the staff at the periphery who will be responsible for putting the plan into action. Another problem can be that an elegant plan can be completely misconceived and wrongly focused. The planning process can also absorb too much time so that most of the time available is taken with drawing up the plan and there is no time left to tackle the important issues associated with putting the plan into action. When this happens it is easy to get strategies in the wrong sequence and if there is no flexibility in the plan this will cause considerable difficulties. Even though a number of problems can be envisaged with a forward planning system there are still many advantages in developing a planning process.

Planning emphasizes the future, helps to coordinate decisions, and keeps the focus on objectives. If done incorrectly, planning can be disadvantageous.

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Some Advantages and Pitfalls of Formal Planning System

Possible advantages	Possible disadvantages
1. Action is called for; no action is immediately apparent	1. 'Over-planning' and inhibition of creativity and innovation, especially when front-line health workers and community are excluded from the planning process
2. More people selectively involved to do specific tasks	2. Too many people or inappropriate people involved
3. Many relevant factors considered	3. Wrong focus
4. Common or traditional assumptions challenged and questioned	4. Takes up too much time
	5. Insufficient time available to plan properly
	6. Curtailment of flexibility
5. Encourages use of a range of possible strategies	7. Strategies may be considered in the wrong sequence
	8. Plan may be too broadly defined to be measured
6. Plan can be evaluated	9. Inhibits action on immediate problems

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2.5. Primacy of Planning

- Planning is the primary management function
- Only after managers have developed their plans can they determine how they want to structure their organization, place their people, and establish organizational controls.
- Planning is the foundation function and the first function to be performed.

Organizing, influencing and controlling are interrelated and based upon the results of planning.

2.6. The Planning Subsystem

Once managers understand the basics of planning, they can take steps to implement the planning process in their organization. This implementation is the key to a successful planning process. Even though managers might be expects on facts related to planning and the planning

process, if they cannot transform this understanding into appropriate action, they are not able to generate useful organizational plans.

One way of approaching this implementation is to view planning activities as an organizational subsystem. A subsystem is a system created as part of the process of the overall management system. Subsystems help managers to better organize the over-all system and to enhance its success. The purpose of this subsystem is to increase the effectiveness of the over-all management system through more effective planning. The planning subsystem helps managers to better identify planning activities within the overall system and, therefore, to better guide and direct these activities.

2.7. The Planner

1. Planners should be able to apply organizational experience
2. Planners should be able to replace any narrow view of the organization with an understanding of the organization as a whole. They must know how all parts of the organization function and interrelates = **conceptual skills**.
3. The planners should have some knowledge of and interest in the social, political, technical and economic trends that could affect the future of the organization. They must have some skill in defining these trends and the expertise to determine how the organization should react to them to maximize success =**technical skills.**
4. The planners should be able to work well with others. Ability to communicate (oral and written) is very important =**human relations skills**

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2.8. Duties of Planners

1. Overseeing the planning process
   - The planner must see that the planing is done.
   - He/she establishes rules, guidelines and planning objectives that apply to him/herself and others involved in the planning process.
   - The planner must develop a plan for planning. => a listing of all the steps that must be taken to plan for the organization

2. Evaluating developed plans: the planner must decide if

- Plans are sufficiently challenging for the organization
- Plans are complete
- Plans are consistent with organizational goals /objectives

=> If they do not fulfill these three requirements, plans should be modified appropriately

3. Solving planning problems

- The planner must recognize a problem, gathers information and then suggest solutions.

2.9. Evaluation of Planners

Planners' performance must be evaluated against the contribution they make toward helping the organization achieve its objectives.

Objective indicators:

1. Organizational plans are in writing
2. The plan is the result of all elements of the management team working together
3. The plan defines present and possible future businesses of the organization.
4. The plan specifically mentions organizational objectives.
5. The plan includes future opportunities and suggestions on how to take advantage of them.
6. The plan emphasizes both internal and external environments
7. The plan describes the attainment of objectives in operational terms when possible.
8. The plan includes both long-and short-run recommendations.

2.10. Maximizing the Effectiveness of the Planning Process

1. Top management support: Organization member should know the support
2. An effective and efficient planning organization. The planning organization should:
   - Use established systems
   - Be simple but complex enough to ensure effort of all planning participants

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- Be flexible and adaptable-Planning conditions are constantly changing, and the planning organization must be able to respond to these changing conditions.

3. Planning should be aimed at implementation
4. Planners should include the right people

2.11. Organizing the Planning Process

The process of planning a program can be difficult, but it can also bring a number of rewards.

- produces well-organized program
- Organization can be strengthened by successfully confronting the challenges of the planning process.

a. **Motivating staff** - Reaching agreement on goals and how to achieve them is motivating. This is because everyone involved ends up with a shared vision and with concrete ideas about how to surmount obstacles in order to achieve that vision.

b. **Building a planning team with a common vision**. The most successful planners actively involved a team of key staff members in the planning process. Disagreements among the goals or how to achieve them are worked out in the planning process, so that internal conflicts do not pose obstacles to implementation. Plans are more likely to be feasible and realistic when staff are involved in the "how to get there." When staff are involved in the planning process, they are motivated to carryout the specific activities that lead to successful programs.

c. **Confronting key issues and solving problems.**

2.11.1. Planning as a Political Process

It is important to bear in mind that planning is a political process, and is not solely the production of a plan.

Planning is concerned with change, and the means of producing the plan is often as important as any final documentation. The relationship between planners, policy makers, service mangers and the communities in the planning process is critical to the success of planning.

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Common Planning Terms.

Questions:	Response in the planning process
1. What are we here for?	The **mission statement** a general statement of the type of organization, its main purpose and its values. = **Statement of purpose**
2. What are we trying to achieve?	the **goals**: service goals define, in general terms,(broad statements), the proposed benefit of the program for its clients e.g., "health for all by the year 2000 and beyond" **Aims:-**There is a number of aims relating to the goal. They are specific to particular health problems. e.g., "To raise the nutritional status of women and children."
3. How will we achieve it?	The **strategy**: A statement which describes how the organization's goals will be met, i.e., which types of services or intervention methods the organization to fulfill its mission and achieve its goals most effectively and feasibly.
4. What will each strategy achieve?	The **objectives**;- quantifiable outcomes or benefits that is the expected results of implementing a strategy. For each program aim, there may be a number of objectives , which are specified, in measurable terms. e.g., "To ensure that 95 % of children are adequately nourished". **Targets:** For each objective, there may be various targets, which specify various points on the way to the attainment of the objective. They are defined in relation to a point in time. e.g., "To ensure that 75 % of children are adequately nourished by 1998".
5. What activities does each strategy calls for?	The **activities**:- A list of the interventions which are necessary to accomplish each objective and a work plan that details the activities and the division of responsibilities for these activities for the plan period.
6. What resources will we need?	The **financial plan**: Statement of the expected capital purchases, revenues (with sources specified), expenses
7. How will we pay for them?	The plan includes service and budgetary objectives for each managerial unit for each year.

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2.12. Dimensions and Types of Planning

2.12.1. Dimensions of plan

Types of plans can be based on the dimensions of plans

1. Repetitiveness dimension: describes the extent to which a plan is used time after time.
2. Time dimension: the length of time period the plan covers (long-term; intermediate term and short-term etc.)
3. Scope dimension: describes the portion of the total management system at which the plan is aimed. A plan for the whole management system as a whole is often referred to as a master plan
4. Level dimension: indicates the level of the organization at which the plan is aimed (top, middle and lower level plans).

2.12.2. Types of Plans (*see table for common terms/types*)

1. Private-Vs-Public Sector Planning
2. Standing-Vs-single-use planning
3. Allocative-Vs-activity planning
4. Strategic-Vs-operational (tactical) planning

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Planning Types and Activities

Types	Activity
Economic/ development planning	National-level activity aimed at steering economic or development policies, primarily through public expenditure or fiscal policies
Strategic plan	Document outlining the direction an organization is intending to follow, with broad guidance as to the implications of services or action
Business plans	Strategic plans prepared by business organizations setting out their direction, and usually providing income and expenditure projections
Corporate plans	Term, now not often used, to describe an integrated approach to planning for an organization.
Regulatory planning	Activities of state planning bodies that set planning guidelines for private-sector activities
Service/program planning	Planning focusing on the services to be provided
Project planning	Planning focusing on discrete time-limited activities
Human resource planning	Plans focusing on the human resource requirements
Physical plans	Plans relating to construction elements
Operational plans	Activity plans detailing precise timing and mode of implementation

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2.12.2.1 Private-and-Public Sector Planning

The general principles and stages of planning outlined are as valid for a private health care provider as for a public sector provider.

Planning for institutions within the private sector requires a similar combination of technical skills and political analysis. However, the different aims of the private and public sectors will lead to very different contents for their plans.

Comparison of the planning approaches used in the private sector does in fact reveal strong similarities, though the terminology employed may differ. These differences reflect the different organizational cultures of the two types of provider.

Business Planning Approach

Business Plan	Public sector plan
1. Determination of mission statement	Setting goals
2. SWOT analysis	Situational analysis
3. Determination of strategy	Option appraisal and programming
4. Operational plan	Operational plan
5. Implementation	Implementation
6. Feedback	Monitoring and Evaluation

Major Differences between Private-And-Public-Sector Planning:

1. Public sector institutions have, as their primary aim, the improvement of the health of a community by meeting its health needs, and private-sectors, by contrast, have as their objective the making of profits by responding to individuals' health demands.
2. Public sector plans must take account of the role of other sectors in the promotion of health. Private firms, by contrast, are only concerned with their own service provision.
3. The private firm or NGO operates within the context and environment which is controlled by the regulatory function of the state

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The state (public sector), in its planning activity has dual role of planning its own direct service provision activities together with its regulatory functions towards other health service providers.

The planning process provides an important opportunity for the MOH to influence the type of health care provided by other agencies. This may include the setting of standards, fee levels, and location of services.

2.12.2.2. Standing-Vs-single use planning

Organization plans can also be divided into two:

1. Standing plans: used over and over again because they focus on organizational situations that occur repeatedly.

A policy is a standing plan that furnishes broad, general guidelines for channeling management thinking toward taking action consistent with reaching organizational objectives.

A procedure is a standing plan that outlines a series of related actions that must be taken to accomplish a particular task.

A rule is a standing plan that indicates what an organization member should or should not do. Rules designate specific mandatory action.

2. Single-use plans: are used only once or several times because they focus on dealing with relatively unique situations within the organization.

A program is a single-use plan designed to carry out a special project within the organization

A budget is a single-use financial plan that covers specific length of time.

2.12.2.3. Allocative-Vs-activity planning

Health planning can be viewed as falling into two broad types. Allocative planning is the making of decisions as to how resources should be used while activity planning relates to the setting of monitorable time tables and schedules for the implementation of pre-set activities.

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2.12.2.4. Strategic Vs Tactical/operational plans.

Organizations can use two main types of plans: Strategic Vs operational plans. Strategic plans are designed by top and middle level managers to meet the organization's broad goals, while operational plans show how strategic plans will be implemented in day-to-day activities. Tactical planning/operational plan is short range planning that emphasizes current operations of various parts of the organization. Short range is a period of time extending only about one year into the future

Their differences lie in:

- **Level**- top and middle level for strategic plans
- **Information**-detailed for operational plans and facts to base strategic plans are usually more difficult to gather than facts upon which to base operational plans.
- **Content**- detailed for operational plans and strategic plans have wider scope and less detailed
- **Time period (time horizons)**- strategic plans involve years or even decades

Strategic planning is long range planning for attainment of organizational goals. Long-range is usually a period of time extending about 5-10 years or even decades into the future.

Strategy- A broad and general plan developed to reach long-range objectives. It is the end result of strategic planning and must be consistent with organizational goal and purposes.

Strategy Management:- The process of ensuring that an Organization possesses and benefits from the use of an appropriate organizational strategy (a strategy best studied to the needs of an organization at a particular time).

Strategy management consists of four sequential and continuing steps:

1. **Strategy formulation**

Developing a comprehensive blue print specifying where the organization is headed and how it plans to get where it wants to go.

2. **Strategy implementation**

Putting the organizational plans into place (allocating resources, assigning tasks, delegating authorities, and carrying out day-to-day activities according to the blueprint.

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3. **Strategy result measurement**

Monitoring performance

4. **Strategy evaluation**

Assessing how well the current strategy is working and how it might be improved in light of external and internal conditions.

Steps in the Strategic Planning Process

When you are developing your plan, you must first identify the need and the demand for services, and then determine how you will meet the need and the demand. This process consists of a number of steps:

1. Stating the mission, or purpose, of the organization
2. Analyzing the external environment: culture, economy, health, market, sources of funding and commodities, and background demographic information.
3. Conducting the SWOT analysis Assessing internal Strengths and weaknesses, and external Opportunities and Threats
4. Establishing goals
5. Selecting strategies to reach your goals
6. Establishing objectives
7. Selecting activities for each objective and developing work plans
8. Prepare a financial plan in accordance with the chosen strategies.

1. Stating the Mission

Strategy must reflect organizational environment. Environmental analysis is a study of the environment in which an organization exists to pinpoint environmental factors that can significantly influence organizational operations.

Factors Commonly exist include

a) Economic issues
b) Demographics
c) Social values
d) Suppliers

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Tools For Developing Organizational Strategy

1). **Critical Question Analysis**

Four basic questions:

a) What is the purpose/objective of the organization

b) Where is the organization is going?

c) In what kind of environment does the organization now exist?

d) What can be done to better achieve organizational objectives in the future?

2). **SWOT Analysis**

- Organization **Strengths** and **Weaknesses**
- Environmental **Opportunities** and **Threats (SWOT)**

3). **Business portfolio analysis:**=> Business related strategy

The first step in preparing your plan is to state the mission of the organization as it is currently defined. This is usually a general statement of the type of organization, its purpose and its values. Example: MCH/FP division of MOH mission statement:

- To improve the health and well being of low-income families and individuals throughout the country through the provision of MCH and contraceptive education and services.
- To train health professionals and community workers through out the country to provide basic and high quality MCH/FP services.

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2. Analyzing The External Environment = Situational Analyses

This is to analyze the external environment as it relates to your organization's mission. An environmental analysis involves the study of four areas that may affect the performance of your organization's programs.

a. Culture, policy, economy and health

b. Background demographic information

c. Supply and demand for the services

d. Sources of funding and commodities.

There are three main activities in an **environmental analysis**

a) Collection of data from written sources

b) Interviews with managers in key institutions

c) Summary of main findings in a document that is distributed to the planning team.

3. Conducting the SWOT Analysis.

Here you will conduct a **SWOT** analysis to identify and analyze the strengths and weaknesses of your organization or program, as well as the opportunities and threats revealed by the information you have gathered an the external environment.

Components of a SWOT analysis

	Positive	Negative
Internal	**Strength**	**Weaknesses**
External	**Opportunities**	**Threats**

Translating the environmental analysis into opportunities and threats.

As a second step in the SWOT analysis, you should look at the main points in the environmental analysis and identity those points that pose opportunities for the program and those that pose threats or obstacles to performance.

E.g.: A major new funder entering the program-**opportunity**

A major funder/donor/ with drawing-> **Threats**

SWOT-Analysis

Description	S	W	O	T	L
1. Program objectives					
2. Major activities					
3. Major achievements					
4. Problems and constraints					
5. Lessons learnt					

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4. Establishing Goals

Program related goals define in general terms that output that your program hopes to have on its target populations by the end of the time period specified in the planning process.

Example:-"To increase contraceptive prevalence in under served areas".

Organizational goals define the internal changes and improvements that the organization or program should make

Example:- "To incorporate measures of quality of care and user satisfaction into the management information system.

The SWOT analysis can help you to set realistic goals.

5. Selecting Strategies to Reach Your Goals

Your strategies map the route that your organization chooses to take in order to achieve its goals. Developing strategies involves considering all the possible strategies and selecting on or more for each goal. The planning team can brainstorm to come up with several possible strategies to achieve each individual goal. The team will then evaluate these strategies on the basis of whether they:-

- Will help to achieve the stated goals of your organization,
- Are feasible given the SWOT analysis
- Will have a positive financial impact on your organization, (revenues, projected cost)

Draw up (in as much detail as necessary) plans and budgets for each strategy you have identified.

Most possible strategies for achieving a goal are not completely independent, but complement one another. If a program has enough resources, it can achieve its goals even more rapidly by implementing more than one strategy. A program with very few resources, however, would do best to concentrate on just one strategy and do it well, rather than scatter its resources.

As you develop your strategies, make use of the information you collected in the environmental analysis to look at what other providers are doing. You will need to consider also the financial implications of all the proposed strategies.

E.g. Building a new health facility- One-time capital expense

Recurrent costs of operating the facility> Thus plan and budget for both.

Expanded program on immunization, Static, Outreach, Mobile

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6. Establishing Objectives.

Every strategy includes a number of objectives.

an objective is a specific statement of the work you intended to carry out.

E.g. **Strategy:** To set up post-partum FP services in hospitals.

Objective: To staff three hospital with 30 nurses who can provide FP counseling and methods.

Program- related Objectives- State the anticipated results in terms of the users of the program e.g. number of new users

Organizational objectives- state the specific, observable changes in the structure or management of your program that will improve efficiency, sustainability or effectiveness.

Your objectives should be **SMART**

- Specific- to avoid differing in interpretation
- Measurable- to allow monitoring/Evaluation
- Appropriate- tot he problems, goals and strategies
- Realistic- achievable, challenging and meaningful
- Time bound- with a specific time period for achieving them.

7. Selecting Activities for Each Objective

In order to meet an objective, you need to determine which specific activities must take place, who will carry out these activities, and when. In preparing financial plan, this List of activities will be useful as you determine what resources (human, material financial etc.) you will need to meet each objective.

8. Preparing A Financial Plan

Once goals, strategies, objectives and activities are defined, the planners can prepare a detailed year-by-year estimate of the revenues and expenses entailed by the entire package of strategies. This detailed estimate (or long term budget), in the financial plan

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The Financial Planning Process:-

- Analyze current and potential sources of revenue
- Make a conservative estimate of the revenue to be received during the period for which the plan is being made.
- Analyze current and potential expense for the strategy chosen,
- Make a conservative estimates of the expenses that will be incurred,
- Calculate to see whether the anticipated revenues will cover the expenses,
- Revise strategies and activities as necessary to ensure the financial states of the program.
- Prepare detailed year-by-year estimates of revenues and expenses.

2.13. Approaches To Planning

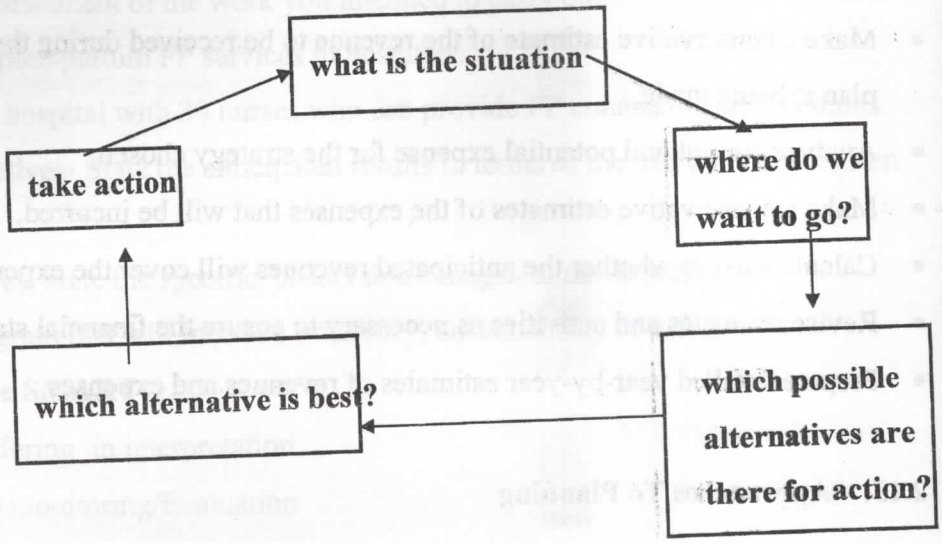
A number of writers have distinguished between three different models of planning:

1. **Comprehensive rationalism**
2. **Mixed scanning**
3. **Incrementalism**

In practice, it is difficult to put any one particular planning process into such classification. They are, however, useful as conceptual tools to highlight different aspects of planning. The definition of planning given referred to planning as an explicit activity that attempts to determine how resources are used in relation to the specific goals of an organization. Common sense might suggest that any such decisions about the future require a sequence of broad logical steps. Such a series of steps is often depicted as a continuos cycle.

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2.13.1. Steps in "rational" planning



The first stage analyses the current position or problem to be solved. Next the aims and ta
(where we want to be) are decided. All the possible alternative courses of action are liste
assessed as to their feasibility and capability to achieving the aims. Lastly, having decide
most appropriate alternative, action is taken to implement it. The cycle then starts again
reassessment or evaluation of the situation.

It is difficult to follow such a logical series of steps; and indeed few planners would wish
dispute that in an ideal world such a process (comprehensive rational approach) is desira
The difficulties of operating such a comprehensive system are recognized by proponents

mixed scanning. Here a deliberate decision is taken to narrow down the area of maneuverability by focusing planning attention on selected areas of interest.

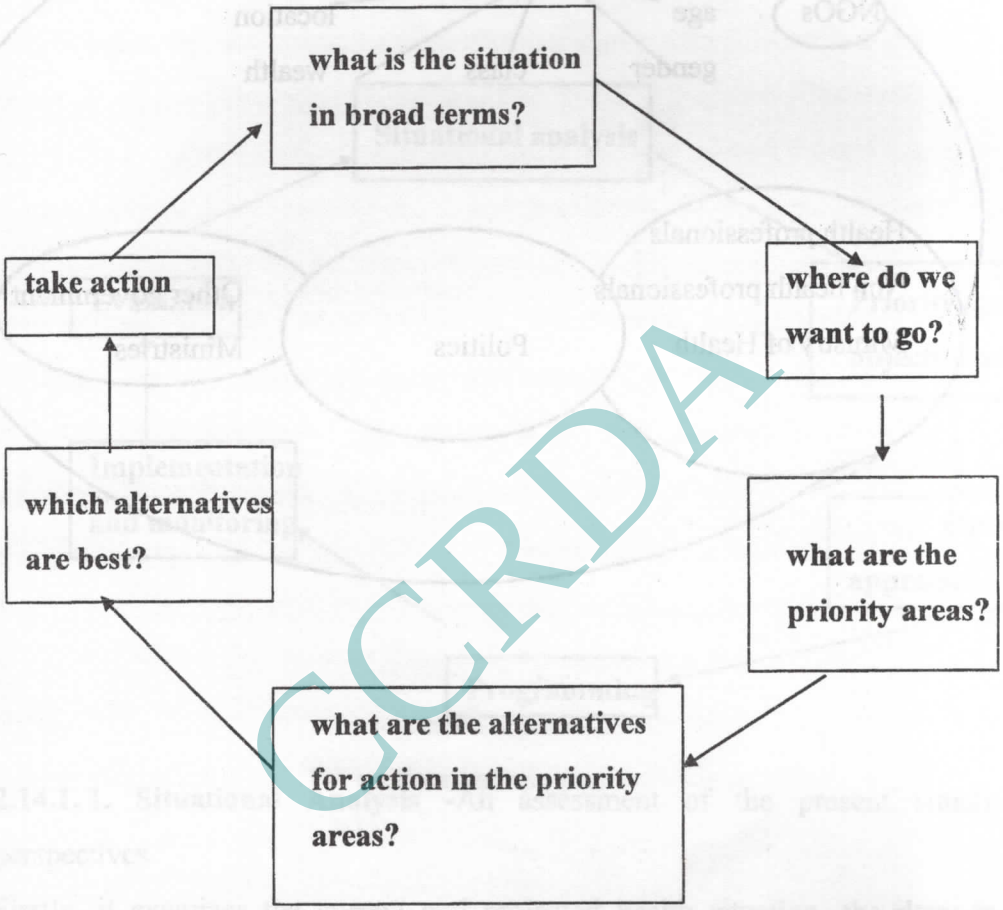
An early stage in the modified cycle (see below) involves determining the priority (prob
areas for planning), and it is within these that the examination of options occurs.

Mixed scanning is so called because it advocates a broad sweep or scan of the whole he
sector, which then forms the basis for the more detailed examination of selected areas f
planning action. Such an approach is less costly in terms of time and information resou
selection of priority areas for alternatives certainly reflects the reality of much planning

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However, it raises a fundamental question: On what basis is such screening to occur? Criteria need to be set as to what constitutes a problem or priority and what, therefore, deserves specific attention

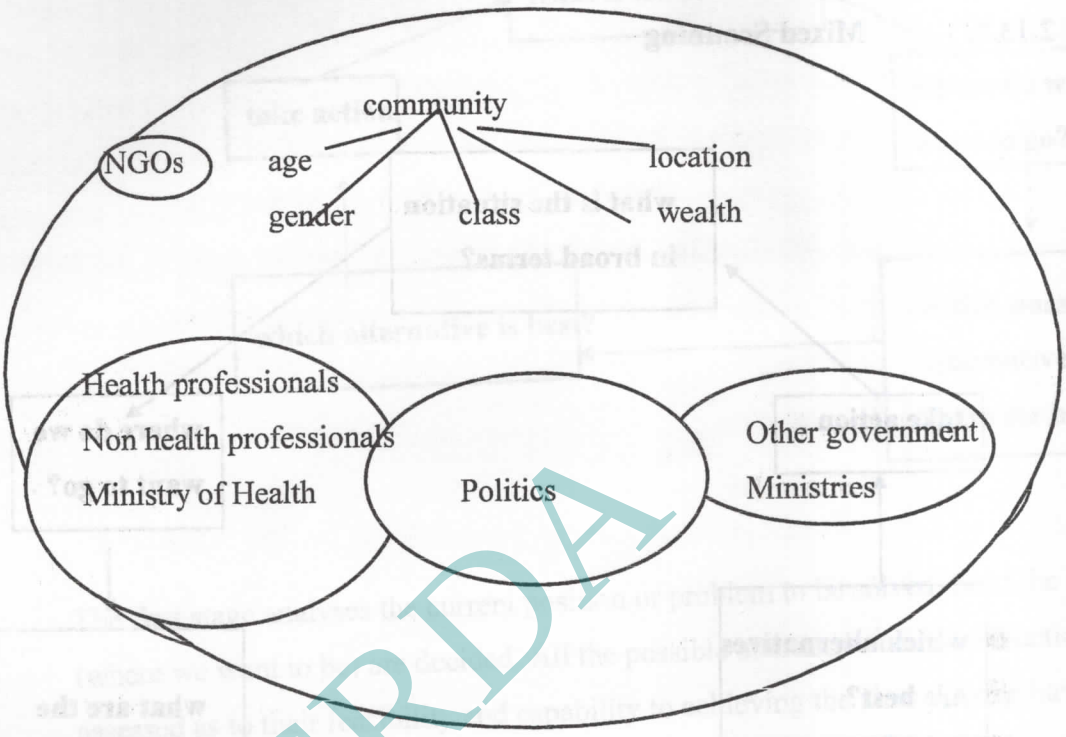
2.13.2. Mixed Scanning



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The third approach to planning, incrementalism recognizes the political nature of planning in a far more overt manner than either of the previous approaches. "Political" because it used to cover analysis and action that recognizes the nature and effect of different interest groups in society.

2.13.3. Incrementalism

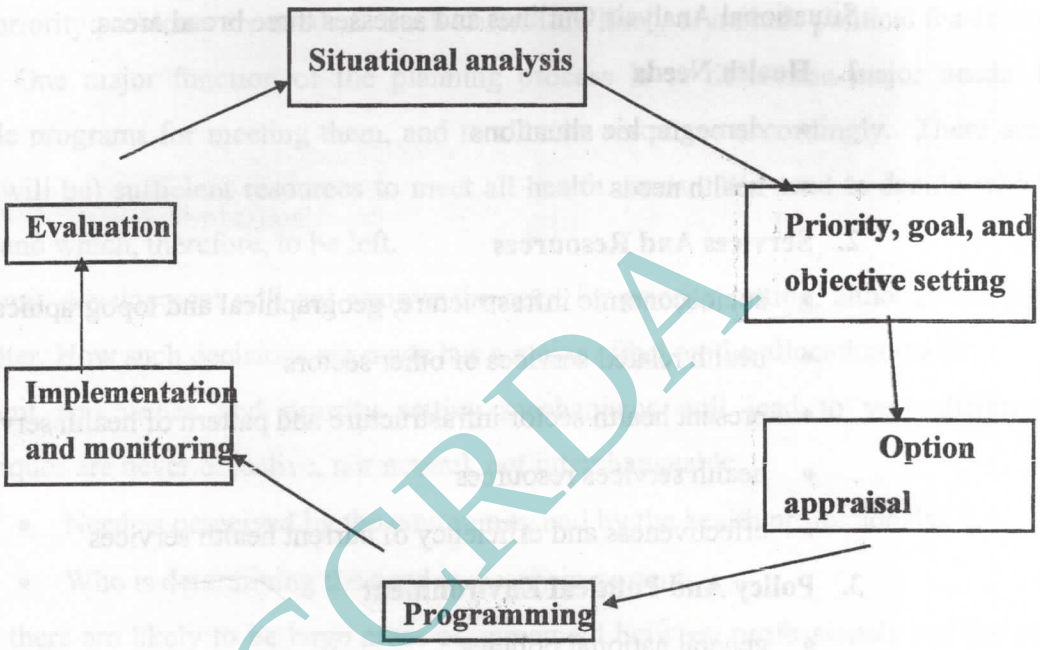


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2.14. Detailed Planning Process/Steps

2.24.1. Realistic Rational Planning

For the purpose of this course and comprehensiveness of the approach, we shall use a modified **realistic rational planning**.



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2.14.1. 1. Situational Analysis -An assessment of the present situation from variou perspectives.

Firstly, it examines the current and projected health situation, the demographic pattern an present and future health needs.

Secondly, it looks at the general socio-economy and provision of non-health services an infrastructure of the health sector and the pattern, of services provided.

- Description of the health facilities and their utilization
- Organizational structure of the sector and its relationships

- It examines the current and future resources of the health sector

- It analyses the efficiency and effectiveness of the health sector in meeting current and health needs.

Lastly, it analyses the wider environment within which the health sector operates. This include the political and policy environment.

The purpose is to provide a broad basis of understanding:

1. it provides a common reference point for the rest of the planning process
2. it allows the selection of priority areas of concern for planning.

Situational Analysis Outlines and assesses three broad areas:

1. **Health Needs**
   - demographic situations
   - health needs
2. **Services And Resources**
   - socioeconomic infrastructure, geographical and topographical situations
   - health related services of other sectors
   - present health sector infrastructure and pattern of health services
   - health services resources
   - effectiveness and efficiency of current health services
3. **Policy And Political Environment**
   - general national policies
   - political environment

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II. Setting Priorities

The second stage of the planning spiral involves the determination of the goals, objectives and targets of an organization - what it wants to achieve. This will be influenced by the situational analysis, especially the health needs and by the broad policy objectives of the organization or state.

Any realistic planning system must ensure that the priorities set are feasible within the social and political climate, and within the context of available resources. Clear criteria for the selection of these priority problems are needed. Such criteria are likely to include political feasibility.

One major function of the planning process is to determine major needs, to devise suitable programs for meeting them, and to allocate resources accordingly. There are not (and never will be) sufficient resources to meet all health needs. We need to decide which ones to meet- and which, therefore, to be left.

Economic development will not remove the need for priority setting, although the pattern may well alter. How such decisions are made has a major effect on the allocation itself.

Different approaches and priority setting mechanisms will lead to very different results Techniques are never objective, nor neutral, not interchangeable.

- Need as perceived by the community and by the health professionals.
- Who is determining the need is clearly important.

While there are likely to be large areas of agreement between professionals and the community in their judgments of need, there will be some differences.

II.I. Underlying Perceptions of Health

- Groups within the health system, including;
  - different professional groupings
  - users
  - community members, in different socio-economic and class contexts
  - politicians - will have very different perceptions of health its underlying importance.

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Why there may be differences in view?

1. Effects of ill health

Ill health is undesirable not in itself, but because of its effects on the individual or the wide community.

The effects include:

- death, pain and discomfort
- disability
- social effects
- economic effects

2. Health as investment or a consumption good.

- An investment view of health which sees health as a means to an end-better productivi growth - would deliberately favor one group (producers) against others.
- Health as a consumption good-valued in its own right issues such as equity are more li be seen as paramount.

3. Target groups

- Vulnerable groups

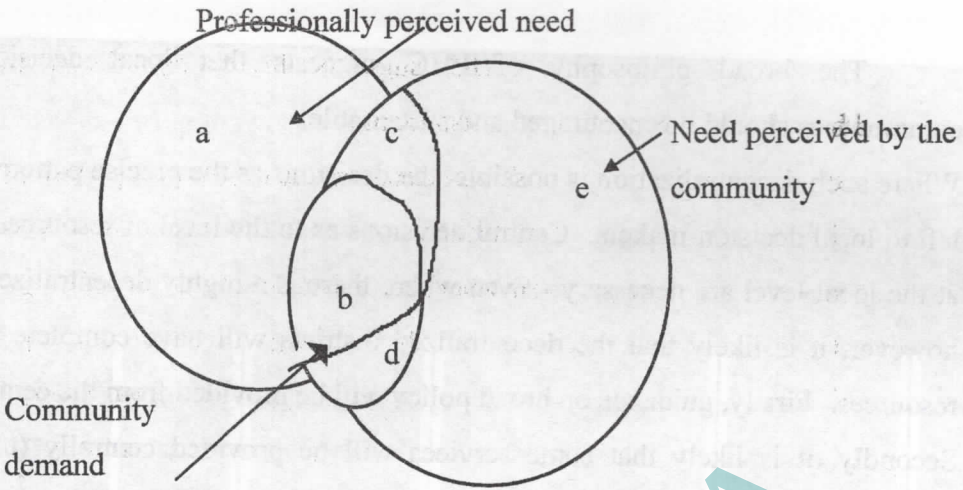
4. Cost, ease, and effectiveness of intervention

Some health problems may be considered to be more important by health professionals tha the community, and vice versa. Both within the community and health professionals, there also likely to be significant differences of opinions.

Perceptions of need will also vary over time.

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Perceptions of need.



- The area (a) represents need that professionals perceive, which is not viewed in the same way by communities.
- Areas (e) and (d) represent needs that a community may perceive, but not the health professionals.
- Areas (b) and (d) together represent the needs for which the community would be prepared to pay.

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II.II. Who Should Set Priorities?

An essential function of the planning system within the PHC context is the development of an open framework for setting priorities which allows communities a role within itself, and redefines the role of health professionals.

Establishing Priorities within a Planning Framework. Such a framework needs to satisfy various criteria.. It needs to:

- achieve a balance between community and professional participation;
- encourage a multi-sectoral perspective;
- achieve a balance between the center and the periphery;

- result in aims and objectives that are feasible; and
- be an open and understandable system

II.III. The Resource Allocation Process

The broad philosophy of PHC suggests that local decision-making in communities should be encouraged and sustainable.

Where such decentralization is possible, the decisions as the precise pattern of health care left to local decision-makers. Central decisions as to the level of resources to be made a at the local level are necessary. Even where there is a highly decentralized system of pl however, it is likely that the decentralized districts will have complete freedom in all resources. Firstly, guidance on broad policy will be provided from the central level.

Secondly, it is likely that some services will be provided centrally (e.g. training, sp service technical support).

Decentralization of decision-making does not obviate, however, the need to set pr Instead it alters the level at which these priorities are set.

II.IV. Multi-Variable Decision Matrices

There may be a variety of reasons why we might want to give priority to a particula problems.

Such reasons include:

- Size of the problem in terms of morbidity;
- Consequent suffering and disability
- Effects of the problem on disruption to the family;
- Economic consequences of the problem
- Likely demand from the public for the problem to be dealt with;
- Technical feasibility of a solution to the problem; and
- Social consequences of the problem

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Ranking and Changeablity matrices

Problems rated on a scale of 0-5 score using criteria

	Criteria						
Problem No.	Seve-rity	Magni-tude	Community concern	Feasibility (cost, ease and, effectiveness)	Urgency of solving the problem	Government concern	T se
1	1	1	1	1	0	1	
2	1	1	1	0	0	0	
3	2	1	3	5	1	2	1
4	4	5	5	4	3	1	2
5							

Problem # 5 has the highest score followed by problem # 4 and # 3 . Therefore, the first three priorities would be problems # 5, 4, and 3 .Then, test each of the problems for their changeability using the following matrix.

Matrix to test changeability of the prioritized problems

	Changeable	less/not changeable
Important	high priority	low priority except for demonstration
Less/not important	priority for an innovation	not considered as priority

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III. Option Appraisal and Evaluation of Options

This stage involves the generation and assessment of the various options for achieving each of the set objectives and targets.

For any target there may be a number of ways of achieving it.

Although it is worth while and productive at this stage to allow a wide variety of creative ideas to emerge, it is important that this set of options is quickly reduced to a reasonable short list.

Options may be discarded at this stage by a recognition of their high resource implications, their political or social unacceptability, or their technical non-feasibility.

Each of the remaining short list of options is looked in turn, and is assessed in three ways:

1. the impact of each option is examined to see its effect on the health target set.
2. the resource implications will be examined, both to look at the efficiency with which each alternative could meet the targets (cost-effectiveness) and to determine whether overall the option can be afforded, given resource constraints.
3. the feasibility of each approach will be examined to see whether there are other barriers to its success (such as technical or political constraints).

Option appraisal is the process of deciding between alternative approaches for reach an objective. It is carried out prior to the implementation of an activity.

Evaluation refers to the process of assessing an activity while it is being carried out or on its completion. Many of the questions asked and the approaches followed are similar in each.

Having set broad objectives, the next stage in the planning process involves deciding how these objectives are to be met. This is done through assessing the range of available alternatives, known as option appraisal.

Economic appraisal techniques are regarded by many planners as one of the particular contributions that economics can make at the option-appraisal stage.

The parameters behind an economic appraisal framework are those of scarcity of resources (the cost side) and competing needs (the benefit side). These are entirely consistent with the basis of planning. However, economic appraisal deals with only some of the aspects of decision-making. Many appraisals continue to remain narrowly economic, and fail to allow for other perspectives.

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III.I. Economic Appraisal Techniques

The basic principle of an economic appraisal is that it sets out a frame work for comparing the resources (costs) used in a particular intervention with the expected outcome (benefits) resulting from it. It takes the view that programs with the highest ratio between outcome (or benefits) and costs are the most appropriate to carry out.

Essentially the process is analogous to any decision-making approach which compares the advantages (benefits) and disadvantages (costs) of alternatives.

There are two major techniques available:

1. Cost-benefit analysis (CBA)
2. Cost-effectiveness analysis (CEA)

Both CBA and CEA compare the cost of an activity with its benefits.

The difference between the two is that in a CBA, benefits are valued in money terms, whereas in a CEA they are left as outcome.

The techniques of appraisal for the private sector (known as 'discounted cash flow analysis' or 'financial appraisal') and the public sector are closely related, but with important differences.

Private sector appraisal is predominantly concerned with maximizing the profits (the difference between revenue and costs) of the project (program).

Public sector appraisal follows the same principle of comparing benefits and cost over time. However, there are three major differences between a public sector and a private sector appraisal. This reflects the differences between the objectives of the public and private sectors.

a) the benefits of public sector activities are not necessarily financial
b) the public sector appraisal considers effects falling on people or agencies outside the activity being appraised
c) the effects should be valued in terms of the real costs to the community , rather than in terms of financial costs.

Stages of an economic appraisal

1. **Determine the objectives of the activity being appraised**

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- the choice of the decision criteria (and the indicator of these) used at the end of the process will be dependent on the objectives of the activity. It is very important that these objectives are clearly spelt out.

2. Identify alternative options

Having clearly identified the objectives that the activity would meet, the next stage requires the generation of alternative options for achieving this.

Many economic appraisals are quality of looking at one or two options in detail without first examining whether other alternatives exist to meet the specified objectives.

It is helpful to try to draw up as comprehensive a list as possible initially, and then explicitly to exclude those which fail to meet defined criteria

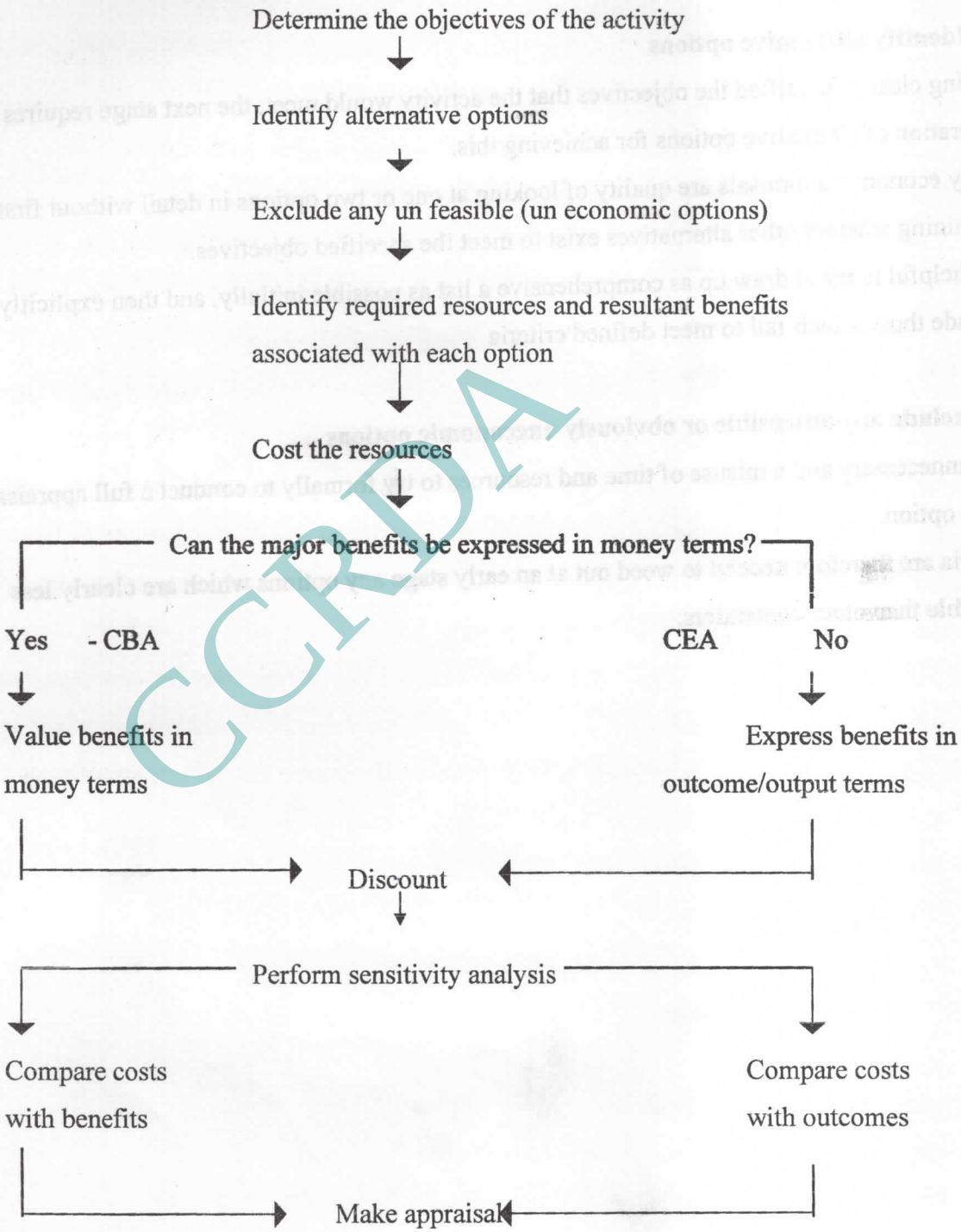
3. Exclude any unfeasible or obviously uneconomic options

It is unnecessary and a misuse of time and resources to try formally to conduct a full appraisal of every option.

Criteria are therefore needed to weed out at an early stage any options which are clearly less desirable than other contenders.

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Steps in Economic Appraisal of an Activity



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There are four criteria that should apply in any situation. These are:

1. Any option which has very strong political support should be included
2. Any option that has a binding constraint that would make it unfeasible should be excluded
3. Any option that can be clearly improved on, in terms of its cost and benefits, by another should be excluded.
4. Several options which are broadly similar should be represented by only one among them.

Identify the Resources Required to achieve each option and the benefits of each option:

This stage involves the identification of the costs and benefits associated with each of the remaining short listed options. In addition to the obvious direct costs and benefits (capital and current costs and changes in health status) there may be various others, known as externalities. These may include hidden inputs and out puts, such as social costs to the community, training costs and benefits, environmental effects, or employment and linkage effects on the economy. The choice of how broad a perspective is taken should depend on the objectives of the appraisal rather than on the availability of a methodology. Methodologies should be servants not masters.

Cost the resources required

Express the resources identified in money terms. Ideally all costs should be included, whom ever they affect, and whether they are financial or not.

Where market distortions are considered to mask the real costs to society, use of shadow or accounting prices is often advocated.

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6. Cost benefit analysis or cost-effectiveness analysis? Can the benefits be expressed in money terms?

The next stage in the appraisal requires a decision as to whether a cost-benefit analysis or a cost effectiveness analysis will be conducted.

This decision depends largely on the type of benefits expected from the activity.

Most programs of activity have multiple effects.

Examples of health sector benefits:

- Reduction in morbidity
- Reduction in pain, disability or distress for the patient, family or community
- Reduction in functional ability
- Improvement in quality of life
- Reduction in mortality rate or increase in life expectancy
- Increase in productivity (arising from the above)
- Reduction in future health or other service costs.

Some of these are linked. How these different effects are valued depends in part on the weight given to health as an investment or a consumption good.

There are three possible approaches in economic appraisal:

6.1. Full cost-benefit analysis

- Each of the benefits is valued in money terms in order that they can be aggregated to form a total benefit figure, which can then be compared with cost.

6.2. Full cost-effectiveness analysis

- Here health status outcomes are brought together to form a composite indicator of outcome. Non-health benefits, such as productivity increases, cannot be included here.

6.3. Partial cost-benefit or cost-effectiveness analysis

- Much more common is the situation where some of the benefits are either valued or brought together as a single indicator, with other benefits being not measured

Which of these three approaches is chosen will depend very much on the type of activity being assessed, appraisal objectives, and the availability of information.

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Of the three, the most powerful is the " full cost-benefit analysis", for two reasons:

a) it allows activities with different forms of benefit to be compared

b) by using a monetary valuation of benefits they can be compared directly with cost.

Therefore, it gives answers to:

- Which alternative is better?
- Is it worth doing?

Cost-effectiveness analysis, by contrast, ranks approaches, but can not answer the more absolute question as to whether any of them is actually worth carrying out.

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IV. Programming and Budgeting

The option appraisal stage will result in preferred options (or a combination of approaches), which will then form part of the plan. This process will be carried out for each priority area and its associated sets of targets.

The programming stage translates the result of the earlier stages into a series of programs, each with a budget and resources.

Following the option-appraisal stage, the next stage in the planning cycle is that of programming. This involves translating the results of the priority setting process and option-appraisals into a set of workable programs of activities that form the basis of the plan, including the budget and staffing requirements.

The end-point of a priority setting process is a set of agreed objectives that it is intended that the plan should achieve.

For each program, the following documentation is required:

- the objectives which the program is expected to meet
- how these objectives will be met (i.e., the services required);
- the resource implications of the programs, and how this will be met;
- other implications, such as legislative and organizational; and
- the timetable for meeting the objectives.

Such a document forms the basis of that of a more general plan document that sets out the intended activities of the organization. It lays the responsibility for effecting change in ongoing service delivery on the planning function, irrespective of whether there are capital inputs or not.

Budgeting and resources allocation are two sides of the same coin.

They are the process whereby the objectives of a service can be translated into action through the medium of financial allocations and the authority to spend it.

Resource allocation implies the distribution of resources, (in particular finance), from the center to peripheral levels. It refers to aggregated financial resources.

Budgeting implies the more detailed determination of precisely how these funds are to be used.

Budgeting and resource-allocation are major planning instruments.

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Forms of Budget

a) Institutional Vs program budgets.

Any budget format has essentially two components - the budget holders and the budget items over which they have control

The aim of any health service is to achieve set program objectives in terms of health status change

Plans therefore, need to be set in such program terms, and backed up by relevant service budgets. Resources such as staff, supplies, or transport are the tools that the managers have at their disposal to achieve these health statuses and hence service, objectives.

Programming budgeting (PPBS = Planning Program Budgeting Systems) attempts to relate resources (inputs) to program objectives (outputs). This will allows monitoring of the input-output relationship.

Example

a) Institutional Budgets

	HQ	Hosp	HC	HS	Total
Salary					
Transport					
Equipment					
Maintenance					
Total					

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b) Program Budget by Organization

	MCH/FP	CDC	Total
Hospital			
HCs			
HS			
HQ			
Total			

c) Program Budget by line item

	MCH/FP	CDC	HQ	Total
• Salary				
• Transport				
• Medical supplies				
• Equipment				
• Maintenance				
Total				

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Function or line-items can be seen, therefore, as describing the nature of expenditure. Institutional budgets are based on where the activities take place.

Program budgeting is concerned with the overall purpose

b) Capital and recurrent budget

The distinction is based on the difference between items of expenditure which can be considered as one-off, as opposed to those which are repeatable

c) Cash-limited Vs volume budgeting

Here a fixed budget is agreed and it is expected that it will be kept to, irrespective of any changes during the year, such as price-increases, that occur after the budget has been set. In such situations unanticipated changes in either prices or in the level of activity are expected to be contained by compensatory reduction elsewhere in the level of activity and expenditure.

Some budgetary systems are based on agreed volume indicators and supplementary for unexpected price-increases during the financial year are automatically approved.

Budgeting and Resource Allocation Approaches

1. Budgeting, resource allocation and decentralization

The principle of PHC suggests that decisions on how resource are used should be decentralized. This needs to be done, however, within a clear framework of equity, thus ensuring that resources are allocated according to need. One solution to this dilemma is to allocate resources in broad financial terms on the basis of needs of the decentralized management areas, leaving the local managers to determine the decision of how such resources are used and hence budgeted. With policies of decentralization, districts and regions are responsible for the detailed budgeting within given broad constraints, with the center-to-periphery allocative decisions being based on population characteristics to attempt to reflect need and equity, such as population, age, sex, social class, mortality or morbidity.

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2. Historical incrementalist budgeting

This is the most widespread approach to budgeting, which allocates overall resources on the basis of the previous year's budget

The crudest form of such budgeting is one where any growth in the overall resources (or cuts) is applied equally across the board.

Such an approach strictly maintains the status quo, with the proportion of the total budget assigned to each activity (institution) remaining the same. It allows for no possible shifting in priority between different activities, and assumes that past budget shares not only were appropriate, but will remain so.

An alternative, allowing more scope for change, entails distributing the incremental gro resources not equally, but among priority services.

3. Capital-led allocation

Under such an approach, a project is approved in terms of both its capital and recurrent co ensures that the capital developments are provided with the necessary running costs.

4. Zero-based budgeting

Under such a system, no budget is regarded as assured. Every year, each budget-h required to justify the whole of her/his budget submission against stated objectives throu use of performance indicators.

Failure to provide adequate justification can result in a reduction in budget size. It re large amount of information

A modified version of zero-based budgeting requires managers to justify their budgets margin.

Managers set out the effects of both an increase and a decrease of say 5% in their budget. The activities possible through an increase of 5% are regarded as the next highest priority service. Those which would be cut with reduction in budget of 5% are assumed to be the priority services.

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V. Implementation and Monitoring

This stage involves transforming the broad programs into more specific timed and budgeted sets of tasks, and activities, and involves the drawing up of a more operational plan or a work plan.

- An essential part of this process is the monitoring of the implementation of these activities = activity planning.

By this point in the planning process, agreement has been reached on the overall objectives and, through the option appraisal, on the approach which the plan will follow. It is the failure to implement plans successfully that most plans are said to be failed.

Developing and Using Work Plans

Work planning is one of the most interesting and challenging tasks carried out in order to develop and implement programs.

A work plan is a document developed by the manger and team, which lists

- All planned activities
- The date on which the activities will occur or by which they will be accomplished
- The resources the activities will require
- The person(s) who will be responsible for carrying out the activities

This document is a valuable fool for efficient and effective program implementation and should be used regularly and consistently as a monitoring tool at all levels.

Work plans (operational plans) are distinguished from long range plans (strategic plans) in that they focus on specific activities which will be carried out over a much shorter time period (any where from a week to a year).

The shorter time frame and the greater focus on activities are two of the most important differences between long-range and work plans.

=>Overall objectives must be determined before developing work plans.

=>Work planning begins with the program's objectives

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Questions Answered by the Work Plan

1. What activities will be undertaken in order to reach program objectives.
2. Who will carry out these activities?
3. When will the activities bee conducted?
4. What resources will be needed?

Analyzing and discussing the activities

Work planning process provides an opportunity for the people who will be doing the work (to participate in the planning process and it gives every one the opportunity) to ask questions:

- Program priorities
- Allocation of staff time
- Appropriateness of individual and program targets
- Internal coordination issues
- Coordination opportunities with other organization

Such analysis and discussion are essential for successful work planning because they allow program staff to understand why the activities are necessary and to determine the best way to carry out these activities. As a result, the staff will be able to develop tighter, more logical, rational work plans. The outcome of this process is a plan of activities and tasks, and a time schedule for their completion, which have been developed and agreed upon by those who will conduct the work.

The collective result of work planning for all levels of the program or organization is a set of work plans that will define clearly what the staff will do in order to achieve the overall program objectives. Work plans adjust to changing circumstances to internal and external environment of the program or organization. Thus, effective managers regard work plans as tools rather than as final documents and are willing to make adjustments to their work plans whenever necessary.

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Work plans need to be reviewed regularly in order to ensure their relevance.

∅. Good work plans are flexible, they need to be able to accommodate the many factors within and without the program that effect how success fully the activities are carried out.

∅. Work plans allow to:-

- Compare what is planned to do with what actually is done
- Examine reasons for the difference
- See the desired out put
- Decide changes to be done.

∅. Work plans require a team effort

∅. Work planning can provide benefits

- Fostering an atmosphere of team work and cooperation
- Communicating to staff the range of activities carried out by others
- Motivating staff to work toward challenging but realistic targets

Providing staff with a sense of accomplishment upon achieving their objectives and targets

- Creating format that is flexible enough to incorporate and respond to unplanned changes.

Enhance organization's ability to calculate, allocate, and prioritize project resources and achieve its objectives.

- Help to determine whether program (organizational) objectives, and the time frame for achieving them, are realistic by analyzing exactly how and when all the necessary tasks will be completed.
- Helps staff to organize their work and use their time efficiently

∅. Work planning benefits all levels of a program or organization

∅. Work plans are important to monitor and evaluate your program

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COMPONENTS OF AN ANNUAL WORK PLAN

- Summary of the long-range plan
- Program objectives for the upcoming year
- Detailed activities related to these objectives
- Resource allocations
- Plan for program monitoring and evaluation
- Annual budget
- Time schedule

SUMMARY

Developing and using work plan

1. The activities in the work plan are directly related to the goals, objectives or short-term targets defined by the annual work plan
2. The activities are clearly presented
3. The activities are broken down into manageable tasks
4. The activities are presented in chronological sequence
5. The work plans show which activities will be completed, by whom and over what period of time
6. The activities have been assigned to the appropriate staff
7. The work plan indicates resources needs and resource allocation by activity
8. The plan and scope of activities are reasonable considering their limitations, human resources, and financial resources.

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Program Planning Matrix (PPM)

Steps

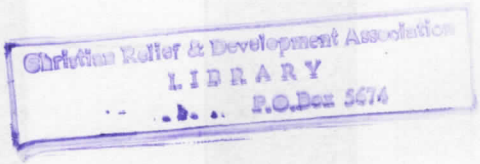
1. Community diagnoses (Needs Assessment)
2. Priority setting of community problem/Needs
3. Define goals/objectives
4. Identify goals /objective
5. Determine activities, actions, actors, sites, materials, finance
6. Draw an implementation plan
7. Design a monitoring frame work/system
8. Design an evaluation frame work
9. Redesign your program.

Developing Gantt Chart: = Summarizing activities

A Gantt chart includes.

1. A column that lists the major project activities.
2. Columns that mark a fixed period of time (days, weeks, months, years) showing when the activities will cover.
3. A column that lists the person(s) responsible for completing the activity

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Gantt Chart

	Activity	Project months 1 2 3 4 5 6 7 8 9 10 11 12	Person responsible
1			
2			
3			
4			
5			
6			

WORK PLAN

Activity	Time	Person	Resource

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SAMPLE ACTION PLAN SHEET

General problem being tackled----------
Aspect of the problem being tackled----------
First step in tackling the problem----------

1. Objectives: Why ? What will it achieve ?	2. Strategy How will we reach our objectives/targets	3. Activity: What will we do first ?	4. Responsibility : Who will do it ?	5. Time : When will it be done ?	6. Resource What will we need to do it ?
7. Help : Whoelse , from outside the health service, can help ?	8. Problem: What can go wrong with the planned activity ?	9. Alternatives : If something goes wrong ,what can be done instead ?	10. Monitoring How will we know we are progressing according to the plan?	11. Evaluation: How will we know we have achieved our objective ?	

CHP

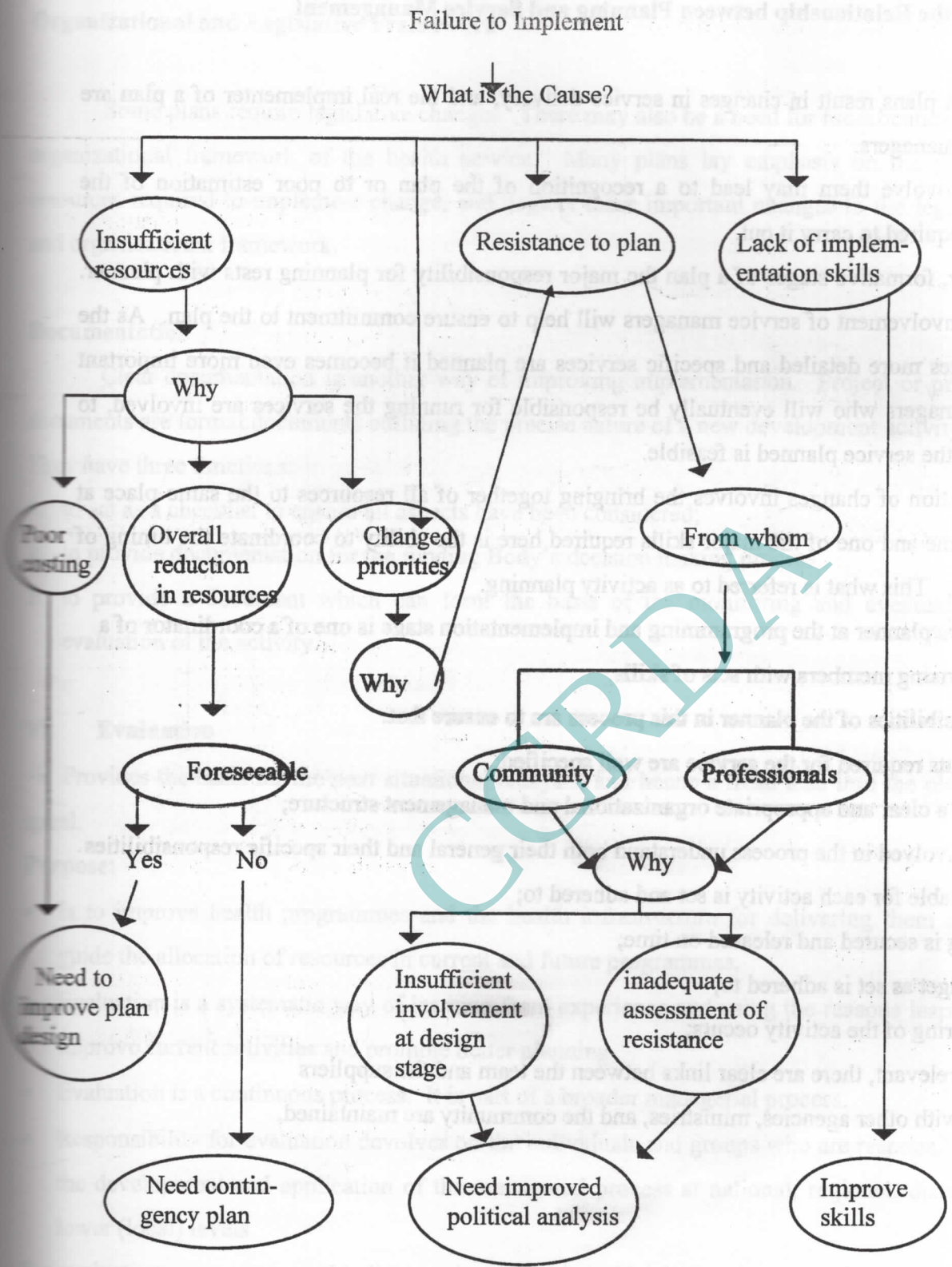
Causes of Poor Implementation

Poor implementation is taken to mean either delayed implementation, non-implementation, or implementation in a form different from that planned.

Factors leading to poor implementation include:

1. Change in priorities or policies from those originally agreed;
2. A resistance to the changes inherent in the plan (from within or outside)
3. A lack of a necessary resources which are required to implement the plan (financial or real (human))
4. Imprecisely specified details of the program to be executed.
5. A lack of the appropriate organizational structure or the appropriate managerial skills necessary.

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Failure to Implement
What is the Cause?
Insufficient resources
Resistance to plan
Lack of implem-entation skills
Why
Poor costing
Overall reduction in resources
Changed priorities
From whom
Why
Foreseeable
Community
Professionals
Yes
No
Why
Need to improve plan design
Insufficient involvement at design stage
inadequate assessment of resistance
Need contin-gency plan
Need improved political analysis
Improve skills

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Improving the Relationship between Planning and Service Management

Most plans result in changes in service delivery, and the real implementer of a plan are the service managers.

Failure to involve them may lead to a recognition of the plan or to poor estimation of the resources required to carry it out.

At the early, formative stages of a plan the major responsibility for planning rests with planner. However, involvement of service managers will help to ensure commitment to the plan. As the plan becomes more detailed and specific services are planned it becomes even more important that the managers who will eventually be responsible for running the services are involved, to ensure that the service planned is feasible.

Implementation of changes involves the bringing together of all resources to the same place at the same time and one of the major skills required here is the ability to coordinate the timing of such inputs. This what is referred to as activity planning.

The role of a planner at the programming and implementation stage is one of a coordinator of a team comprising members with sets of skills.

The responsibilities of the planner in this process are to ensure that:

1. the inputs required for the service are well specified;
2. there is a clear and appropriate organizational and management structure;
3. those involved in the process understand both their general and their specific responsibilities
4. a time table for each activity is set and adhered to;
5. funding is secured and released on time;
6. the budget as set is adhered to;
7. monitoring of the activity occurs;
8. where relevant, there are clear links between the team and the suppliers
9. Links with other agencies, ministries, and the community are maintained.

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Organizational and Legislative Framework

Some plans require legislative changes. There may also be a need for modification of the organizational framework of the health service. Many plans lay emphasis on the physical resources required to implement change, and neglect these important changes to the legislative and organizational framework.

Documentation

Clear documentation is another way of improving implementation. Project or program documents are formal documents outlining the precise nature of a new development activity. They have three functions:

1. to act as a checklist to ensure all aspects have been considered;
2. to provide documentation for the funding Body's decision making process
3. to provide a document which can form the basis of the monitoring and eventually the evaluation of the activity.

VI. Evaluation

→ **Provides the basis for the next situational analysis, and hence a fresh lead into the planning spiral.**

Purpose:

- Is to improve health programmes and the health infrastructure for delivering them and to guide the allocation of resources in current and future programmes.
- Evaluation is a systematic way of learning from experience and using the reasons learned to improve current activities and promote better planning
- Evaluation is a continuous process. It is part of a broader managerial process.
- Responsibility for evaluation devolves on the individuals and groups who are responsible for the development and application of the managerial process at national, regional, district or lower (local) levels

For evaluation process we need indicators, i.e., variables which help to measure changes.

Criteria are also use, → standards by which actions are measured

- Evaluation has to be supported by valid, relevant and sensitive information.

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Components of Evaluation

1. Relevance → the rationale for adopting health policies in terms of their response to social and economic policy
2. Adequacy → sufficient attention to programmes/activities
3. Progress → comparison of actual with scheduled activities, identification of reasons for achievements or short comings with remedies.
4. Efficiency → the relationships between the results obtained from a health programme (activity) and the efforts expended in terms of human, financial and other resources
5. Effectiveness → the desired effect of a programme, service, institution or support activity in reducing a health problem.
   →measures the degree of attainment of the pre determined objectives and targets of the health programme.
6. Impact → expression of the overall effect of a programme/service/

Frequency of Evaluation:

→ Results have to be summarized and reported on/at given times or specified intervals. e.g. quarterly, biannually, annual

When selecting indicators full account has to be taken of the extent to which they are:

Valid, reliable, sensitive and specific.

Validity: → the indicator actually measures what it is supposed to measure.

Reliability → even if the indicator is used by different people at different times and under different circumstance, the results will be the same.

Sensitivity → the indicator should be sensitive to changes in situation concerned.

Specificity → the indicator reflects changes only in the situate concerned.

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Examples of indicators

1. **Health policy indicators**
   a. Political commitment
   b. Allocation of adequate resources
   c. Equity of distribution of resources
   d. Community involvement etc.
2. **Social and Economic indicators**
   a. Rate of population increase
   b. Gross national product (GNP)
   c. Income distribution
   d. Work availability
   e. Adult literacy rate etc.
3. **Indicators of provision of health care availability**
   a. Availability
   b. Physical accessibility
   c. Economic and cultural accessibility
   d. Utilization of services
4. **Indicators of PHC coverage**
   a. Availability of safe water supply
   b. Adequate sanitary facilities
   c. Access of mothers and children to health care
   d. Availability of essential drugs etc.
5. **Health status indicators**
   a. Percentage of newborn with birth weight. ≥ 2500 gm
   b. Percentage of children with weight for age that corresponds to norms
   c. Infant mortality rate
   d. Child mortality rate
   e. Morbidity rate etc.

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Why Planning Sometimes Fails and What Can Be Done

Plans may sometimes fail. It is by understanding why such failure occurs that planning processes and plans themselves can be improved. The following table lists some of the reasons why planning may fail. The three main reasons for failure are: (i) lack of commitment by key managers, (ii) poor planning processes, (iii) plans remain on paper and are not implemented.

Why Planning Sometimes Fails and What Can Be Done

Why does planning fail?	What can be done?
A. Lack of commitment by key managers	1. Involve operations people in drawing up the plan
1. Lack of acceptance by 'operational' personnel who will put the plan into action	2. Ensure commitment before starting to plan
2. Lack of interest and commitment by senior personnel	3. Ensure involvement of all managers at an early stage
3. Some managers are allowed to opt out	4. Get commitment to the district health activities by all segments involved in health and get all these views represented in the plan made.
4. Confusion about what corporate planning means	5. Find out what people do and problems they have before recommending any change
5. Planners ignore the work people are already doing	

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Cont'd.

B. Poor planning process	1. Hold discussions with people working at the periphery
1. Plans are made centrally in 'ivory towers'.	2. Distinguish broad policy making and strategy from the details of putting a policy into action
2. Confusion between strategic and operational planning	3. Set up a working group instead
3. Trying to plan through committees	4. Find someone who is acceptable to most segments that will be involved in putting the plan into action (negotiator)
4. The planner is of too low a caliber	5. Make it simple so that it fits in with people's current work
5. The planning system and the plan is too sophisticated and too complex	6. Distinguish between planning and the operational activities of putting plans into action
6. Planners fail to accept the limitations of their role	7. Use a simple format and seek the views of others
7. Insufficient attention is given to the format of plans	• Implementation needs to be built into the plan.
C. Plans are not used	• Commitment is needed before plans are drawn up, and maintained during implementation

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Information Requirements at Different Stages of Planning

Planning stage	Information Required
Situational analysis	• General country characteristics • Health Status needs • Health service availability • Utilization of health care and reasons for differences • Other sectors services • Political context • Resources present and projected
Priority setting	• National goals- health • Community views on priorities • Health workers views on priorities
Option appraisal	Possible alternative options appraisal information: • effectiveness • efficiency • equity • acceptability • feasibility • resource availability
Programming	• Option chosen • Budgetary information • Resources
Implementation	Monitoring information at capital implementation stage • inputs provision/constraints • Changes from plan information Management information at service provision stage • Utilization of service • Cost • Constraints
Evaluation	As for appraisal and situational analysis

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Summary of Steps in the Planning Process with Particular Emphasis on District Health system

1. District Assessment (where are we now?)

1.1. Recognizing problems and the need for action

1.1.1. Health problems
1.1.2. Health care problems
1.1.3. Health care and resources costs
1.1.4. Community characteristics
1.1.5. District and community opportunities

2. Priorities, goals, targets (where do we want to go?)

2.1. Recognizing health priorities

2.2. Setting key targets

2.2.1. Accessibility
2.2.2. Coverage
2.2.3. Tasks for each level
2.2.4. Problems to solved
2.2.5. Experience to be used
2.2.6. Problems to be avoided

3. Putting the plan into action (How will we get there?)

3.1. Matching tasks to the staff and resources available

3.2. Setting up organization and training

3.3. Supervision

4. Evaluation (how will we know when we arrive?)

(Feedback to number 2 & 3)

5. Forward planning (what new problems do we have?)

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Summary of Steps in the Planning Process

1. Situational analysis **assessment**
2. Stating Organizational objectives **goals, objectives and targets.**
3. Listing alternative ways of reaching objectives **Option appraisal**
4. Developing premises upon which each alternative is based **Option appraisal**
5. Choosing the best alternative for reaching objectives **Option appraisal**
6. Developing plans to pursue the chosen alternative **programming and budgeting**
7. Putting the plans into action. **Implementation and monitoring**
8. Learning from experiences **Evaluation**

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Managerial Control

Control is an essential part of every organization. The management process is incomplete and sometimes useless without control function. Yet, control has been considered to be one of the most neglected and least understood areas of management. Control is used by many people indifferent contexts. Control appears to be a threatening word for many. However, control is the essence of good management. Control is concerned with assertaining that planning, organizing, and directing functions result in attainment of organizational objectives. Control precipitates bad decisions and their consequences and restores effectiveness and efficiency.

Control is a generic term used to denote monitoring of use of resources, functioning of organizational processes and the results achieved. Control is done to ensure that what is supposed to occur is occurring. Control is a process in which managers ensure that actual output is consistent with desired output, work and conversion processes are effective, and resources consumption is appropriate.

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Control and Control Processes

Control is:

- gathering information
- comparing actual results to expected results
- intervening to take constructive actions

The important components of control are:

1. standards
2. measurement
3. comparison
4. appraisal
5. intervention or change

Two basic types of control system:

1. closed loop control system
2. open loop control system

Closed Loop Control System

It contains basic control components:

- predetermined standards that represent expected results
- an information collection system that monitors actual results
- a means of comparing actual results to pre-established standards
- an automatic correction mechanism

There is no human intervention in this control system. It is applicable to mechanical systems.

Open Control System

This system needs human intervention when results are different from pre-established standards.

HSO control systems are predominantly open loop systems.

Control and intervention points

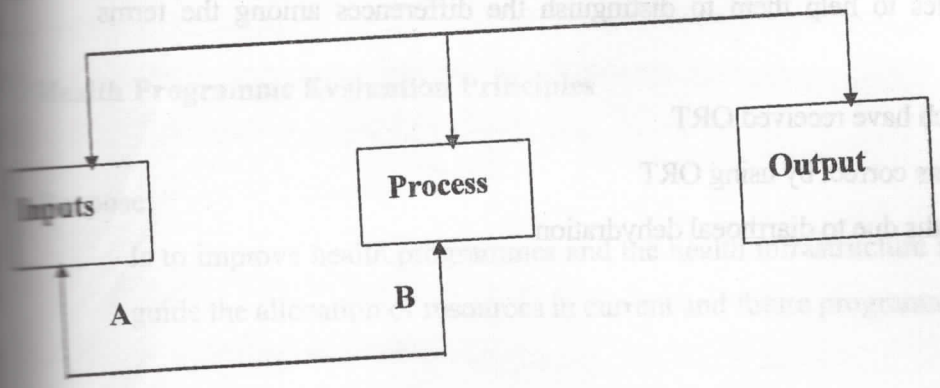
All control systems are information based. In the process of control, information is collected at three monitoring points:

1. input utilization
2. functioning of conversion process
3. outputs

If results are inconsistent with standards, intervention can occur at input or process or both.

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Intervention points



MONITORING

Monitoring is concerned with work progress, staff performance and service achievement.

Monitoring may focus on different aspects of a service, program or project:

a) **Inputs** - are resources provided for an activity, and include cash supplies, personnel , equipment and training , etc.

b) **Processes** - transform inputs into outputs

c) **Outputs** - are the specific products, goods or services, that an activity is expected to deliver as a result of receiving the inputs.

d) **Effectiveness** - a service is effective if it works, i.e., it delivers outputs in accordance with its objectives

e) **Efficiency** - a service is efficient or cost-effective if effectiveness is achieved at the lowest practicable cost.

f) **Outcomes** - which generally refer to for example peoples' responses to a program and how they are doing things differently as a result of it

g) **Impacts** - which are the effect of the program /project on the people and their surroundings. These may be economic, social, organizational, health, environmental, technical or other intended or unintended results of the program/project. Impacts are long-term effects while outcomes are shorter-term effects relating to the objectives.

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Output measures refer to outputs as far as possible and cover availability and accessibility of services; **Outcome measures** refer to utilization; and **impact measures** to the condition of the target in the area. Use examples to help them to distinguish the differences among the terms Examples are given below:

Output - number of homes which have received ORT

Outcome - number of mothers correct by using ORT

Impact - Reduction in deaths due to diarrhoeal dehydration

The purposes of monitoring:

1. Monitoring of **inputs** insures that:

- Work progresses according to schedule
- Staffs are available (in accordance with assignments)
- Resource consumption and costs are within planned limits
- The required information is available
- Community groups or individuals are mobilized as expected

2. Monitoring of **process** insures that:

- The expected functions, activities and tasks are performed in accordance with set norms/standards
- Work standards are met
- Meetings are held as planned
- Training is conducted as scheduled
- Communications take place as necessary

3. Monitoring of **outputs** insures that:

- Products/services meet specifications
- Services are delivered as planned
- Training results in new skills or higher level of skill
- Decisions are timely and appropriate
- Records are reliable and reports are issued

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- Conflicts are resolved
- The community is satisfied

Health Programme Evaluation Principles

Purpose:

Is to improve health programmes and the health infrastructure for delivering them and to guide the allocation of resources in current and future programmes.

- Evaluation is a systematic way of learning from experience and using the reasons learned to improve current activities and promote better planning
- Evaluation is a continuous process. It is part of a broader managerial process.
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Manual on

Management Health Information Systems

Prepared for

Health Managers

CCRDA

Jimma Institute of Health Sciences

September 1999
Jimma

A. Management Information Systems (MIS)

Managerial functions-planning, organizing, leading, and controlling- are necessary for successful organizational performance. Undertaking these managerial functions is an information-intensive process. Therefore, to support these functions, systems for supplying information to managers are of especial importance. Only with accurate and timely information can managers monitor progress towards their goals and turn plans into reality. If managers cannot stay "on track", anticipating potential corrections, developing the skills to recognize when corrections are necessary, and then making appropriate corrections or adjustments as they progress, their work may be both fruitless and costly.

Information systems are being used to produce more than routine business reports. Managers at all levels are looking for information systems provide the necessary information for effective operation. How quickly and accurately managers receive information about what is going right and what is going wrong eventually determines how effective the control system will be.

Before embarking on the detailed discussions of MIS, it would be ideal if we briefly go through the fundamental concepts of information and its nature. Different scholars have looked at information from different point of views and perspectives. In some literatures we find the term **"Information"** and **"Data"** are being used interchangeably. For there is no hard and fast rule which dictates us to define a given term or concept universally, the following definitions are selected and presumed to suit our subsequent discussions.

Data: are unorganized facts/figures about events.

Information: can be perceived as data that have been processed/ analyzed and organized in some meaningful way. From this definition one can connote that analyzed and organized facts supposed to provide meaning to the receiver. This makes information contextual. To clarify this concept, for instance take two persons, Mr. X and Mr. Y. If we provide them the same sets of organized and summarized facts (information) to these two individuals, they are likely to generate different meanings. This is because information exists in the mind of the person. It involves the cognitive power of the person to generate meaning.

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Information shares many properties with other resources: it has value and can be managed. Information also has its own special qualities: it is not consumed or expended like money, and it ages.

Factors affecting the "value" of information

One can evaluate the information received based on the following factors:

Timeliness: information must be available to the right person at the right time for the appropriate action to be taken.

Quality: the more accurate the information, the higher its quality and the more securely managers can rely on when making decision.

Completeness: this refers to the adequacy of information. The information provided supposed to have integrated facts on the critical aspects of the business or the event under investigation. The adequacy of information that managers obtain determines the accuracy of decision he/she will make.

Relevance: the information that managers receive must have relevance to their responsibilities and tasks. For instance, inventory level information is irrelevant to the personnel manager. Similarly, the manager in charge of inventory control does not need to know about the status of staff members in other departments.

MIS: *is a system whereby accurate and timely information made available to management in view of facilitating the decision- making process and enabling the organization's planning, control, and operational functions to be carried out effectively.* **MIS** provides information on the past, present, and projected future and on relevant events inside and outside the organization. By and large, MIS serves as a signal that denotes the current state of the organization.

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The Evolution of MIS

It is true that organizations have had some kind of management information system even if it was not recognized as such. In the past these systems were highly informal in setup and utilization. Before the wide spread use of computers, many organizations simply found it too expensive and time- consuming to gather, store, organize, and distribute large amounts of data. The computer revolution changed this. When computers were first introduced into organization, they were used for few organizational functions- usually accounting and billing. As the speed and ease of processing data grew, other data processing and information tasks were computerized. Therefore, advances in hardware and software technology are as significant reason for MIS evolution (technology push).

MIS began to prevail in the mid 1970's with the emergence of integrated systems, for example, order-entry systems, rather than individual applications. Database management systems technologies provided much of this impetus. Since the mid-1980s, MIS has taken on an even wider perspective promulgated by the emergence of the microprocessor-based personal computer and software capable of supporting end-user computing.

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Process involved in an MIS

The occurrence of a given business event provides MIS with the raw material (data). The event may be recorded, appropriately stored, transmitted, combined with other raw materials and ultimately presented in some appropriate way. The technologies and techniques for doing all these may be complex and naturally develop and change overtime. The figure below shows the elements involved in MIS irrespective of any particular technology employed.

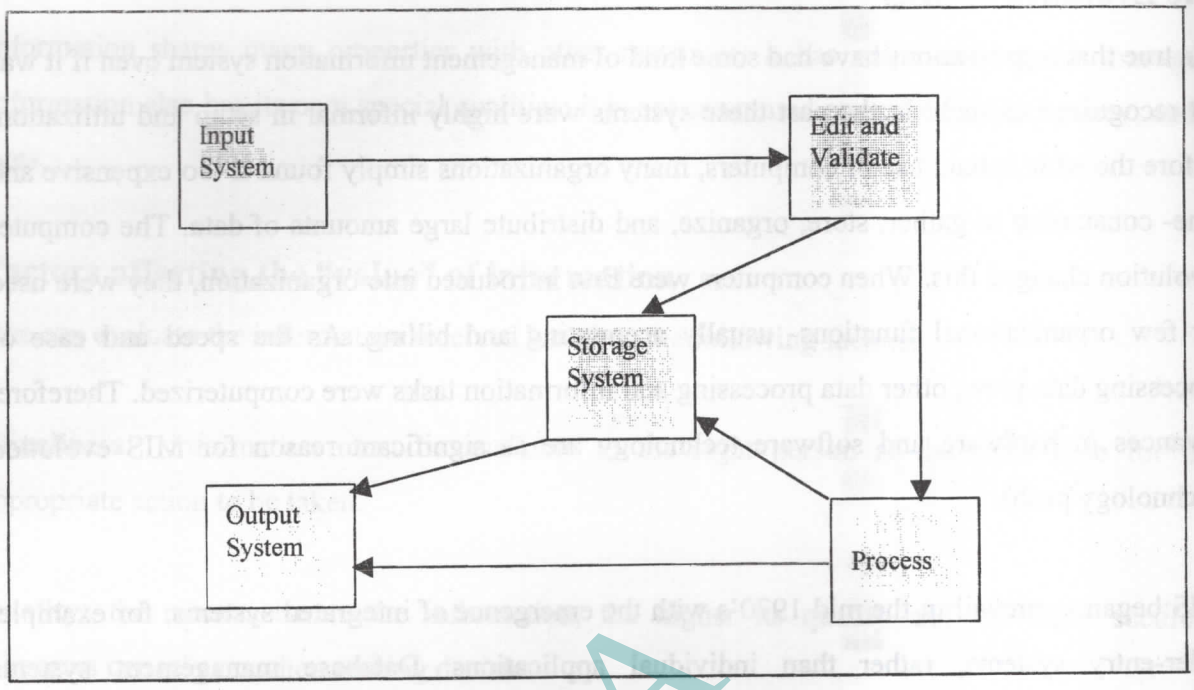


Fig 1. General Model of MIS

Levels of MIS

While constructing MIS the underlying assumption is that the system will serve various levels and aspects of management activities such that each level of MIS has different emphasis. With this understanding, different scholars have came up with different models. Among these models, the best known is the one defined by R.N. Anthony, shown in fig 2.

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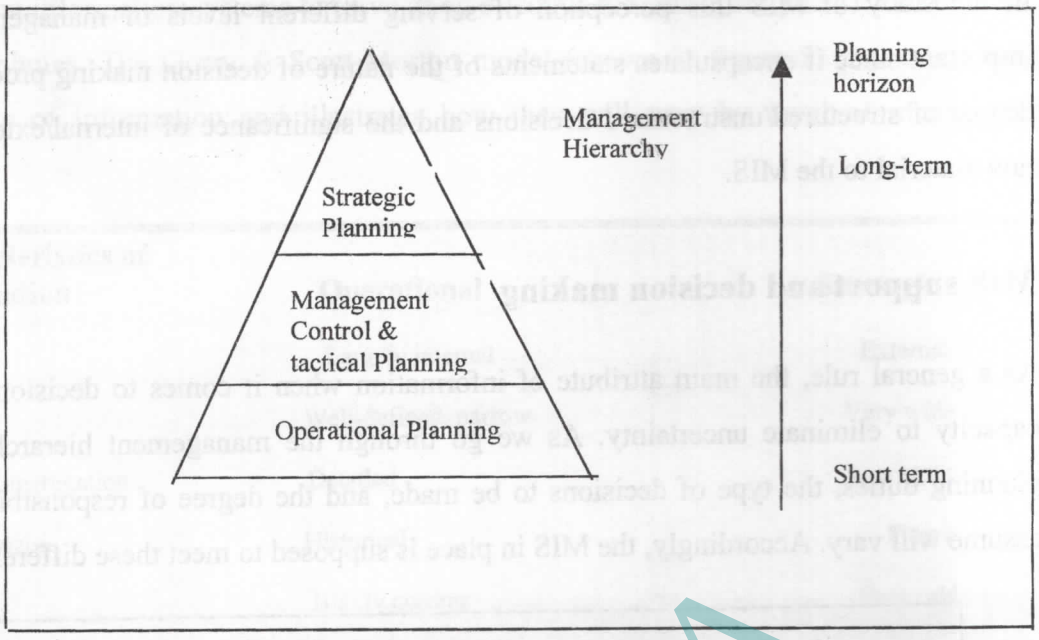


Fig 2. Levels and Planning horizons of Management activities.

The effectiveness of MIS support to each level is cummulative, ie informed decision making at each level depends up on the MIS constructed for that level plus those of the lower tiers. To elaborate this concept, for example:

Level	Purpose
Sub operational (transactional)	Producing an invoice
Operational/tactical	Reporting daily sales ledger figures Developing Budgetary forecasts
Strategic	Making business sector comparison

Fig 3 Management levels & information

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In the study of MIS this perception of serving different levels of management activity is important since it encapsulates statements of the nature of decision making process such as the degree of structured/unstructured decisions and the significance of internal/external sources of raw material to the MIS.

MIS support and decision making

As a general rule, the main attribute of information when it comes to decision making is the capacity to eliminate uncertainty. As we go through the management hierarchy, the type of planning duties, the type of decisions to be made, and the degree of responsibilities managers assume will vary. Accordingly, the MIS in place is supposed to meet these different needs.

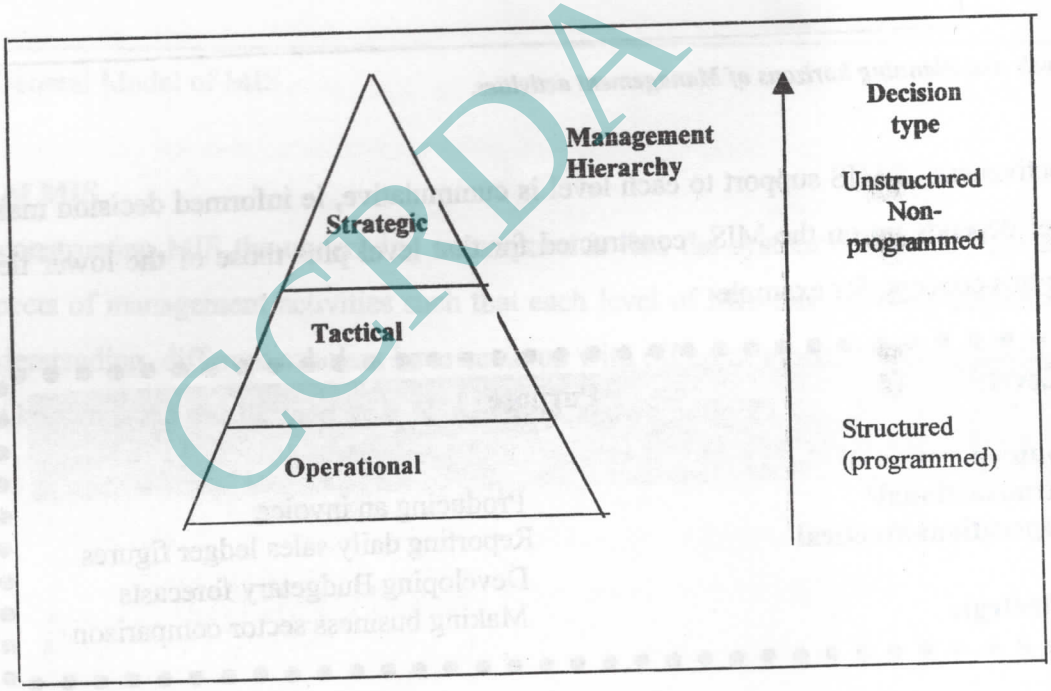


Fig 4. Decision type continuum

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For management information systems to serve as an effective tool, their out puts should possess a number of attributes. The Gorry & Scott-Morton model (shown in figure 5) presents a more detailed picture of information and illustrates how they will vary by level of management hierarchy.

Characteristics of Information	Operational	Strategic
Source	Largely internal	External
Scope	Well-defined, narrow	Very wide
Level of aggregation	Detailed	Aggregate
Time horizon	Historical	Future
Currency	Highly current	Quite old
Frequency of use	Very frequent	Infrequent

Fig 5. Model of information requirement by level of management activity

From the preceding illustrations it is apparent that the design of the MIS must take into account the information needs of the various managerial levels, as well as the routine transaction-processing needs of the total organization. As shown in fig 5 the information sources for operational control are found largely with in the organization, while the information sources for strategic planning tend to be outside the organization.

Operational Control

An MIS for operational control must provide highly accurate and detailed information on a daily or weekly basis. A production supervisor has to know if material wastage is excessive, if costly overruns about to occur, or if the machine time for job has expired.

Middle Management

Middle level managers, such as division heads, are concerned with the current and future performance of their units. They therefore need information on important matters that will affect those units-large scale problems with suppliers, abrupt sales declines, or increased consumer

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demand for a particular product line. Thus, the type of information middle-level managers require consists of aggregate (summarized) data from within the organization as well as from sources outside the organization

Top Management

For top managers, the MIS must provide information for strategic planning and management control. For strategic planning, the external sources of information – on economic conditions, technological developments, the actions of the competitors- assume paramount importance. This information is hard to computerize because supporting data are generally beyond the control of the organization.

For management control functions of top managers, however, the sources of information must be both internal and external. Top manages in general concerned about the overall financial performance of their organizations. Now the pressing issue one likely to raise at this point is- How may the various needs of different managerial levels be translated into information system?

For instance, a given manufacturing company may design the manufacturing component of its MIS this way:

- Supervisors receive daily reports on direct and indirect labor, materials usage, scrap, production counts, and machine downtime.
- Superintendents and department heads receive weekly departmental cost summaries and product-cost reports; plant managers receive weekly and monthly financial statements and analyses, analyses of important costs, and summarized product-cost reports.

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- Divisional managers receive monthly plant comparisons, financial planning reports, product-cost summaries, and plant-cost summaries, and plant-cost control reports; and, financial, top managers receive overall over all monthly and quarterly financial reviews, financial analysis, and summarized comparisons of divisional performance.

To summarize, when we look at the information needs of managers at each level of we recognize the following:

- Top level managers need information that will inform long-range strategic plans and decisions.
- Middle level managers are responsible for making tactical decisions. Thus, they need information to allocate resources and establish methods needed to implement top- level plans.
- Lower level managers make the day-to-day operational decisions and control specific tasks. Thus, they need information that enables them carry out these routine activities.

Classifications within MIS

These days when we talk about MIS, we should note that it is more of a computer-based system. As it has been indicated earlier, the system in place is supposed to provide information that satisfies various needs. The same system is expected to provide information for planning, decision making, and for routine day to day operations. In view of satisfying these differing needs we have the following sub systems:

Transaction processing systems

Transaction processing systems' focus is data. These systems are designed to handle routine transactions and maintenance of database. Transaction processing systems (TPS) form the basis of many of the information processing applications I n organizations today. Transactions may be introduced into the system on-line in the form of time cards, inventory adjustments slips, insurance applications, and the like. The processing of transactions can be accomplished in a batch mode, wherein all similar items are grouped or bundled and processed together daily of weekly, or on-line, wherein each transaction is processed as it is generated. System chars and

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other graphic tools assist systems analysts and users in understanding and depicting **TPS.** The essential activities of transaction processing system includes data capture and validation, transaction-dependent processing steps, and database maintenance.

Management reporting systems

The focus of these systems is information. They are designed to supply information for routine responsibility reporting from databases. The principal identifying attribute of management reporting systems (MRS) are: they are built for situations information requirements are reasonably well known, they are oriented toward reporting on the past and present, and, they generally report on internal operations. These characteristics clearly deal with operational and tactical types of activities.

Decision Support System (DSS)

Decision support systems' focus is a decision; such systems are designed to accommodate individual and group decision- makers. Decision support systems provide managers with opportunities to evaluate alternatives related to a given problem or task.

Principal identifying attributes of decision support systems (DSS) are that they directly support the decision-making process and they permit projection. These characteristics clearly relate to managers, their information needs, and activities.

Executive information systems

The focus of these systems is accessibility. That is, senior executives need access to internal and external information. Principal identifying attributes of executive information system (EIS) are they provide immediate access to information reflecting

Key success factors and access to internal and external information and they are easily tailored to user's preferences. These characteristics are critical for senior executives' types of activities and decisions.

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Expert Systems

Expert systems are computer programs designed to operate within a narrow problem domain and to capture and present to the user expert knowledge. These systems can be developed to assist decision- makers in such diverse areas as classification, diagnosis, and monitoring, among others. Most importantly, the knowledge base of an expert system consists of human judgment and rules of thumb, as well as accepted facts and rules within its domain.

Expert systems consists of a knowledge base, a friendly user interface, an inference engine to control the system operation as well as the application of the system's knowledge, and an explanation subsystem to permit the system to explain to the user how it arrived at conclusions.

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B. Health Management Information Systems

Like other information systems, health Information System involves the process of data collection, analysis, presentation and utilization by the health personnel engaged in the management and provision of health care services. The health information serves as the basis for rational policy making, planing and managing the overall health care services.

Without a sound information system, good planning is impossible. Where there is no planning, there will be problem in the utilization and allocation of scarce resources. Therefore, the development of strong health planning within the health administration requires a well organized Health Information System (HIS) as a prerequisite since objective decision making is not possible without valid, relevant and timely information.

A health information system comprises an information process and management. Therefore, designing a health information system requires systematic attention to each component of both the information process and management structure. The following figure shows the component of health information system and the interrelationships between these components.

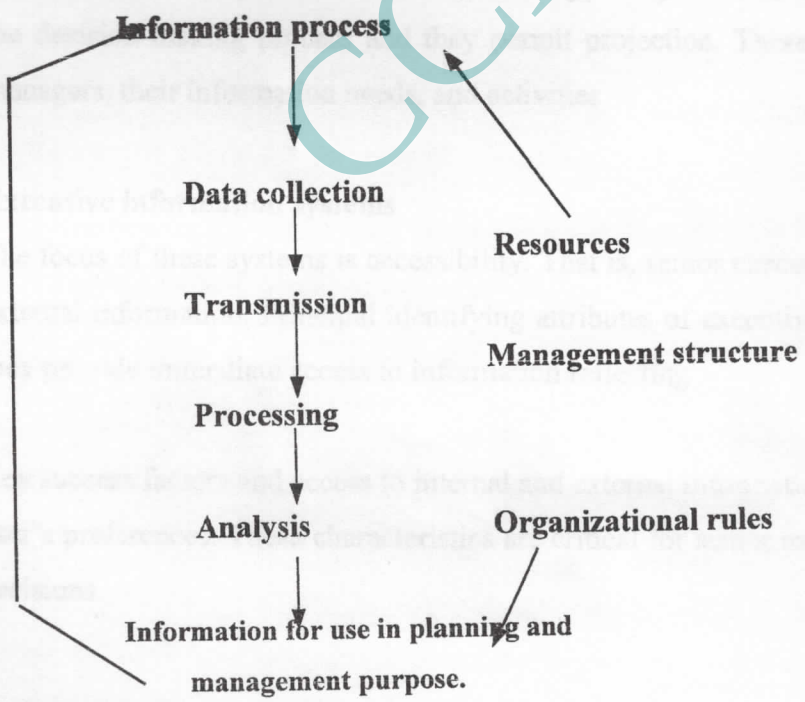


Fig. 7. Components of health information system

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Source: WHO 1997.

The figure denotes that through the information process, raw data or inputs are transformed into information that can be used in decision- making. The information process involves data collection, transmission, processing, and analysis. The ultimate end of the production of information is for use in planning and management of health services. The management structure ensures that quality information is produced. The resources parts of the structure includes the people (such as planners, managers, statisticians, epidemiologists, and data collectors), hardware, software, and finance. On the other hand, the organizational rules are procedures for supplying management and computer maintenance, definition of staff responsibilities etc. aimed at ensuring the efficient use of the resources

Basically, the main purpose of having health information system is to collect, compile, analyze, document and utilize health information so as to be able:

- to identify the health problems of the population concerned.
  to plan health service activities to be performed at different levels of health services.
- to prioritize and tackle the important health problems.
- to monitor performances at different levels of health system.

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To materialize the aforementioned purposes, information required includes:

- information on population along with the demographic and other characteristics
- health status of the population
- information on health care activities such as preventive, curative, promotive etc. information on the economic sector such as agriculture, education etc.

By and large, for the overall management, control and provision of efficient health care services, the health management information system supposed to provide information on:

- Administrative and financial system,
- Clinical and medical system

- Public health information on the target population for which a given health care facility is established to serve.

Problems of Health Information Management

When we look at the design development and the overall management, and utilization health information system in Ethiopia it is yet at early stage. We can say that health information is meagerly available. HIS in Ethiopia has been developed centrally by Ministry of Health. The major source of information on health in Ethiopia is health facility-based record system which includes information on a variety of types of individual contact between various health institutions and on technical and management support activities such as, clinical, laboratory, radiological, and administrative services.

It can be said that the existing health information system in the country is basically disease-oriented and hospital-based and are designed to provide national level officials with aggregate data for statistical reports. This health facility-based record system which is the predominant source of health information in Ethiopia, has been criticized to have major short- comings such as the following:

- It is generally restricted to medical care services.
- It provides information only about those persons who actually used the health facilities, and tells nothing about the health status or health needs of people who are not using the facilities.

The other sources of health information are community-based and special studies. This source of information have not been strengthened and very limited scope in Ethiopia.

Flow of Health Information in the Health Care Systems

The flow of health information in Ethiopia is a multilevel process. The flow starts at a grassroot or community level and proceeds step by step through the health system to the national level.

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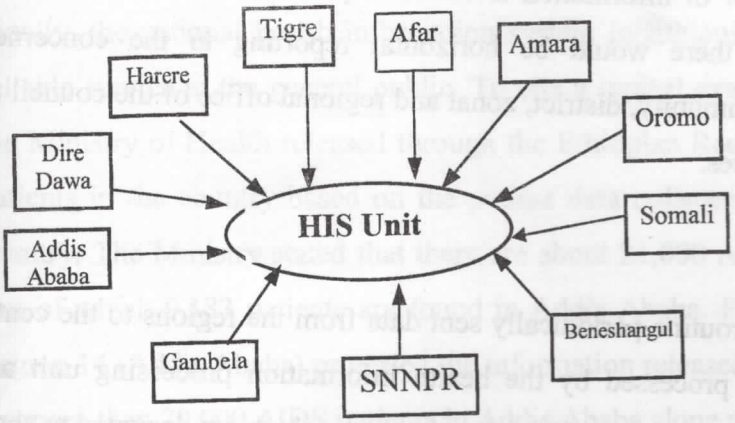


Fig. 8. Flow of Health information in Ethiopia

SNNPR: Southern Nations Nationalities and Peoples Regional State & HIS: Health Information System

Starting from the grassroots or community health service level until it reaches to the ministry of health, the health information passes through the following levels.

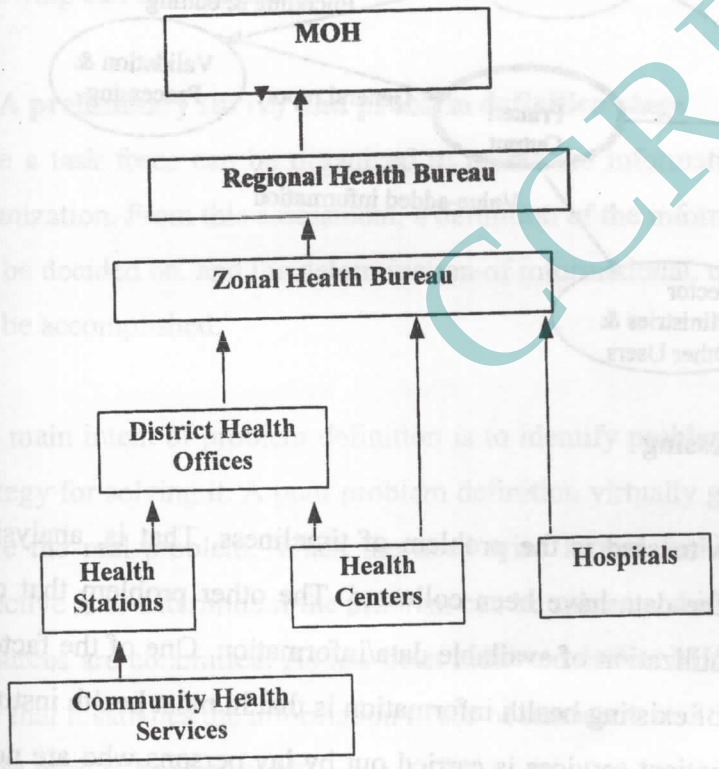


Fig. 9: Levels in the flow of health information

Source: MOH 1994.

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Here it should be noted that the flow of information is not merely vertical as denoted by the diagram. It is also expected that there would be horizontal reporting to the concerned administrative offices such as the community, district, zonal and regional office of the council of the representatives when the need arises.

Health Information Dissemination

As has been pointed out earlier, the routine periodically sent data from the regions to the center are usually verified, validated, and processed by the health information processing unit and various reports are generated. The outputs are usually printed reports which are designed to show the over all health status of the country. These outputs are sent back to regions. This is in view of providing regions the opportunity to compare their performance against each other and to enable them share experiences. This process can be depicted as follows:

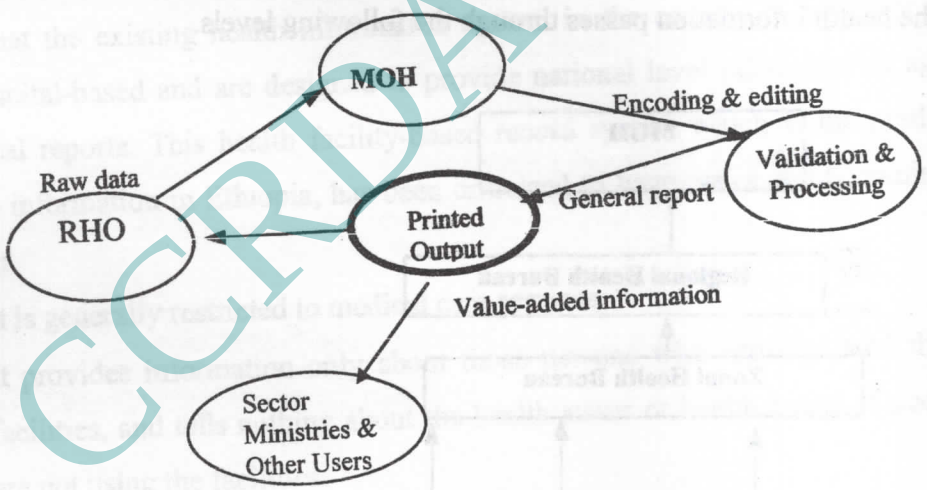


Fig. 10: Health information processing

In this process the major pitfall witnessed is the problem of timeliness. That is, analysis and reports are generated years after the data have been collected. The other problem that can be cited here is the poor quality and utilization of available data/information. One of the factor that is responsible for the poor quality of existing health information is that in most health institutions registration of patients at the out patient services is carried out by lay persons who are not well trained to undertake such a task. Because of this problem, researchers, planners, policy makers are reluctant to use the available information.

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Finally, the national health information system in Ethiopia has failed to provide accurate and reliable service to the general public. To cite a typical example, in the middle of August 1997, the Ministry of Health released through the Ethiopian Radio information concerning the AIDS patients in the country based on the patient data collected from 54 Hospitals through out the country. The Ministry stated that there are about 21,000 AIDS patients throughout the country. Out of which 9,183 patients are found in Addis Ababa. Four days later, the Health Bureau of Region 14 (Addis Ababa) protested the information released by the Ministry and stated that there are more than 20,000 AIDS patients in Addis Ababa alone and this was the debate of that week.

Design consideration of health management information system

There are different approaches and systematic steps that are recommended to be followed in the design and implementation of an information systems. It is beyond the scope of this session to go through the intricacies involved in systems analysis and design. For the sake of simplicity the following can be considered:

1. A preliminary survey and problem definition stage

Here a task force can be organized to assess the information needs and strategic goals of the organization. From this assessment, a definition of the information system the organization needs can be decided on, and the determination of informational, operational, and functional objectives can be accomplished.

The main intent of problem definition is to identify problem, determine its cause, and outline a strategy for solving it. A poor problem definition virtually guarantees that the system will fail to solve the real problem. When the need arise formal feasibility study can be conducted. The objective is to determine if the problem can be solved and if it is worth solving before significant resources are committed. As has been indicated earlier **MIS** supposed to be designed in such a way that it satisfies the information needs of managers at different level. Therefore, the following issues need to be addressed:

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Can a single database satisfy the differing information needs of the three managerial levels?

Can different functional units share the same database?

Should a top-down or bottom up approach to **MIS** development be followed?

2. A conceptual design stage

Through an analysis of the current information system, alternative **HMIS** with specific performance requirements can be developed. At this stage the systems analyst works with the user to develop a logical model that identifies essential processes, data elements, objects, and other key entities without reference to how those components will be implemented.

3. A detailed design stage

Once the conceptual plan is decided on, performance specifications of the new **HMIS** can be established. Components, programming, flowcharting, and database (including specification for personnel interaction with the system) can be designed. A model of the system is created, tested, refined, and reviewed until it meets the specified level of performance.

4. Implementation stage

The formal requirements for the new **MIS** are determined. The logistics of space allocations, equipment additions, and form designs are worked out and enacted. At this stage, the organization database's databases can be created and entered into the system and the training program of users can commence.

Guidelines for effective design

To effectively undertake the aforementioned design stages, the following guidelines are recommended:

1. **Make users part of the design team**

Since the system to be developed is for users, involving users in the design team has a paramount importance. Users know what information they need, when they need it, and how they will use it for managerial action and decision making.

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2. **Carefully consider the costs of the system**

Weigh the money and time costs of the system. Here specifying the way the system will be developed, the time required for different steps, milestones to be reached and finally specifying the associated cost is mandatory.

3. **Consider alternatives for software development**

These days the commercially available software packages are being satisfying the needs of many organizations. However, due to the unique nature of the organization if the information need cannot be satisfied by the off-shelf package, the next alternative is to go for in-house development. This is, indeed, determined by the technical competence available within the organization.

4. **Pretest the system before installation**

Some problems may show up which were not apparent during the earlier stages. Pre testing may avoid some problems before final implementation commences.

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information for planning

Information is referred at all points in planning, although the type and indeed the accuracy necessary will vary at each stage. Planning is concerned with implementing decisions about change. In order to make, justify, and implement these decisions, information is needed.

The collection of information is viewed by some planners as a mechanical process involving statisticians, accountants, and record clerk, and as a rather tedious and marginal activity as far as the real work of planning is concerned. Such view is not only unsustainable, but also foolish, if planning is to achieve its purpose of implementing necessary changes.

1. **Information is a basis for planning**: information is the lifeblood of the planning process. Without information it would be difficult to make any realistic decisions at all. We have argued that, to be successful planning needs a combination of a 'rational' process and political analysis. Both of these starnds need to be based on information. The actual selection of information itself is, however, not a totally objective process. Criteria are needed to select

those aspects of a situation to be studied in more detail. These criteria are then translated in information needs. For example, concentration on the collection of information on particul groups in society (such as by social class, gender, age or area of residence) may imply intere in them as priority groups. Similarly, information about socio-economic or infrastructur factors (such as housing) suggests a particular view of health. Planner may look for specif information to enable them to pursue particular predetermined ends. The participants in th planning process all have their own preconceptions and values, which affect where the concentrate their attention.

2. **Information is power**: a planner with a confident grasp of information is in a strong positio to convince others of her/his case. Anyone involved in the planning process cannot afford t underestimate the importance of access to and familiarity with information.

Forms of information

Much of the information needed, particularly within the context of a PHC planning process, i not reducible to a statistical format.

For example, information relating to a political perspective is rarely quantifiable, and as such may often not even be viewed as 'information'. It is important, however, not to confine one's view of information to what is already measured or easily measurable -- what is sometimes known as 'hard information'.

i) Hard information: information which are already measured or easily measurable

ii) Soft information: information which may be impossible or difficult to quantify, is ofte ignored as being unscientific or difficult to deal with. Community views about health are form of information that may be ignored by health professionals. Information about healt workers' commitment or opposition to change may also be seen as being unmeasurable.

Some of these 'immeasurability' may of course reflect a historic lack of interest in such information. The recognition, within a PHC approach, of the importance of such information ha led to the development of new innovative approaches to information that is inherently unquantifiable, and would suffer from attempts at quantification. However, there always be

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important information that is *inherently* unquantifiable, and would suffer from attempts at quantification. The elusive concept of 'political will' is one such example of an essential ingredient that cannot be quantified. Attempts to measure it, for example by counting the number of political statements made, may detract attention from the dept of commitment of a policy.

Accuracy of information

Information is rarely, if ever, completely accurate. Information provides a means of presenting a view about the real world. Such views can differ not only in terms of distortions or 'inaccuracies' but also, more fundamentally, as a result of genuinely different perceptions.

Information, which is collected is rarely comprehensive, but is, represented by indicators, of which there are two broad types, proxy and shorthand.

Indicators are variables that indicate or show a given situation, and thus can be used to measure change.

Shorthand – indicator of something which one could *in theory* measure, but measuring which would be very costly. The use of community health workers per head of population could be seen as a shorthand measure of overall health service availability.

Proxy – indicators of something which is, by its complex nature, *inherently* unmeasurable. For example, GNP per capita has been used as a proxy indicator of development

There are simple, single-measure indicators and composite indicators. Simple measures include infant mortality as a proxy measure of health status. Composite measures of health status include disability-free life expectancy. The usefulness of indicators to 'indicate' the real nature of a situation is often assessed against the following criteria:

Validity: does the indicator actually measure what it is intended to:

Reliability: will the indicator provide the same information under different conditions

Sensitivity: does the indicator actually show changes in situation?

Specificity: does the indicator show changes in situation as specified?

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Examples:

- death under the age of 1 year in hospital are not valid measure of infant mortality
- professional's qualitative judgment of disability within a community may not be reliable
- infant mortality may be a sensitive indicator of child death; and
- infant mortality will not be a specific indicator of measles, as a number of other factors may reduce infant mortality

Much information collected depends heavily on both skills of the 'collector' and how s/he 'views' or interprets reality. Example of factors affecting accuracy of information: In carrying out a survey of a village population, one might imagine that to obtain the number and age-distribution of inhabitants was fairly straightforward. However various factors could affect the number recorded, such as:

- The definition of 'resident' (if a normal resident was not present at the time of the survey, should s/he be counted?)
- The level of motivation of the enumerator (would s/he bother to visit a home some distance from the main village?); and
- Enumerator training (do they ask the right question to elicit accurate ages?)

Much medical information is even harder to obtain 'accurately'. Diagnosis is an art not a science, particularly where diagnostic aid are scares. For example, the cause of death in one case may be attributed to TB by one diagnostician and to chronic bronchitis by another. Furthermore, the way information is collected may itself force inaccuracy. Most health information systems use the International Classification of Disease as a basis for their diagnostic records. Such systems look for a single cause of death. For example, while there may be, in certain circumstances, no single cause of death (for example, measles in combination with malnutrition is often fatal), recording forms may require such single diagnoses.

At a more fundamental level, the very concept of the *cause* of mortality or morbidity (and hence the information dependent on it) is not simple. In the above example, malnutrition and/or measles may at first be seen as the cause of death. However, at a second level, the real cause of death may be viewed as poverty. Hence, the increasing attention being paid to social

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epidemiology, which by arguing for analysis of such broader social causation of disease challenges more narrow clinical epidemiological perspectives.

In many situations as the accuracy of information increases the cost of obtaining it increases.

Type of information

Different stages in the planning process require different types of information. Collecting, analyzing, and presenting information all have attendant costs, yet much information is processed without any end-use. Not only is the processing of unnecessary information costly, but it may also lead to inaccuracies, as the staff involved see little purpose in the field work. An efficient information system should routinely collect only that information for which it can see a use and the cost of which is outweighed by benefits seen in improved decision-making. It is not always necessary, of course, for the health service *itself* to collect the data. Similar information may already be collected by other means, and this may provide an adequate low-cost substitute.

Sayings:

The information you have is not what you want.

The information you want is not what you need.

The information you need is not what you can get.

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It is all too common to find extremely active information systems providing information that does not match the requirements of the planners and managers; and it is an important part of planning process to define its information requirements carefully.

Information can usefully be classified into three types:

- information on the needs of specified population;
- information on resources and services; and
- information on the policy and political context

Indicators needed for health and health needs of a specified population:

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- information on resources and services; and
- information on the policy and political context

Indicators needed for health and health needs of a specified population:

Information is required which relates to demographic and socio economic characteristic of the population under consideration.

Possible health measures:

- Disease incidence and prevalence
- Mortality rate
- Disabilities

To be complete, profiles of a community's health need to incorporate not only traditional disease-based indicators, but social and economic indicators as well.

Relationship between input, output, and outcome

Input indicators measure the resources that are used in the provision of services. These include personnel, finance, drugs, and building. Bringing these resources together leads to the provision of services. These are measured by output indicators, such as outpatient attendance's, number of vaccinations given, bed-days, or pit latrine constructed.

Output indicators give no idea of the effect on health itself, and many argue that a further set of true health indicators which measure the change in health status are the crucial ones for the setting of priorities. These latter are known as ***outcome*** indicators and include the number of lives saved, children protected (by for example immunization), or life-years saved

Indicators of need

The first type of information consists of indicators of the *health* and *health needs* of a specific population. Information is required which relates to demographic and socio-economic characteristics of this population. This is essential as a baseline against which health-needs can be set. Within the context of PHC philosophy, it is important that this information is not confined to traditional (albeit essential) demographic information, but also looks at wider indicators of poverty and of social justice, such as the status of different social groups.

Despite various attempts to get agreed indicators of health there are still a number of different approaches to the measurement of (ill) health. This, in part, results from the differences between

concepts, and hence indicators, of health status, health needs, and health-care needs. Health status reflects a positive or absolute state. Health needs are the inverse, and reflect service requirements. These are often wrongly used interchangeably, and may become confused. There are various ways in which a shift away from a narrow organic definition, using single disease measures, towards a wider more holistic view, has been attempted.

The simplest measures of (ill) health are those that measure the level (incidence and prevalence) of disease in an individual or community. Such measures correspond to a narrow definition of health. While such information is important for planning, there is increasing recognition that over-reliance on such indicators is inconsistent with a PHC philosophy.

Information about disease incidence *by itself* is not particularly valuable. Information as to its *effects* is also needed. An example of a spectrum of alternative ways of viewing the disease polio is given below. These range from simple measures of incidence rates to composite measures that bring together the number of deaths and the level of disability.

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Example: ***Possible health measures of polio***

Disease incidence	- New cases of polio per 1000
Disease prevalence	- Total cases of polio per 1000
Mortality rates	- Deaths from polio per 1000
Life years lost	- Aggregations of years of life lost as a result of polio
Disability	- Number of disabled polio survivors
Physical quality	- Measure of the functional quality of life for polio survivors of Life Index
Quality-Adjusted Life Years	- Measure of the number of life years affected by polio and it's disabling effects

Such measures, however, still focus on the physiological aspects of ill health. PHC suggests that a broader understanding of health is needed, to include not only measures of mental well being but also social and economic indicators. Contrast for example the health of two children, both 'disease-free', of whom one lives in a slum and the other if the child of a senior civil servant. The first is less healthy not only because of the undisputed effects of poverty on the child's

physiological state, but also because the quality of life itself has been lower. This should be incorporated into any measurement of health. To be complete, profiles of a community's health need to incorporate not only traditional disease-based indicators, but social and economic indicators as well.

Methods of collecting information

Methods of collecting information are frequently biased. For example, data collected on LBW at hospital deliveries will be biased towards hospital users. As such, it is unlikely to be representative of the majority who deliver outside the health unit.

The main methods of collecting information are:

⇒ Surveys: obtaining information from a selected, sufficiently representative and large number of units for sub group of a population. Its quality depends mostly on methods of data collection and selection of individuals.

Examples of the use of surveys within the health sector include:

- health surveys, both medical and community-based
- Knowledge, attitude, and practice (KAP) studies;
- 'Opinion pools' about services or needs;
- Health service utilization surveys;
- personnel surveys for hum resource planning; and
- financial and expenditure surveys.

Rapid appraisals and census are also part of this method.

Surveys can be carried-out by direct personal contact (interview), selective record examination telephone contact, or postal questionnaire.

⇒ Treatment records: health service record review

⇒ Noticeable disease return: cholera, measles, acute febrile illness, typhus, yellow fever

⇒ Managerial reports and returns: on financial, personnel and supplies return

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⇒ Informed opinion: in a community meeting, focus group discussion

⇒ Information from other ministries, agencies, and institutions

⇒ Other sources: international reports and journals for comparative information; and media reports

⇒ **Situational analysis**

The first step in planning process involves an assessment of the present situation. This is referred to as a situational analysis. This analyses the present situation from various perspectives.

1) it examines the current and projected situation, the demographic pattern, and present and future health needs
2) it looks at the general socio-economic and provision of non-health services and infrastructure
3) it analyses the infrastructure of the health sector and the pattern of services provided. This would include not only a description of the health facilities, and the utilization of those services, but also the organizational structure of the sector and its interrelationships. It examines the current and future resources, such as personnel, equipment, and buildings. It would also analyse the effieciency and effectiveness of the health sector in meeting curremt and future health needs.
4) It analyses the wider environemnt within which the health sector operates. This would include the political and policy environment

It should be stressed that a situational analysis conducted by public sector plan needs to cover the whole of the health sector, and not just those services provided directly by the public secotrs.

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STATISTICS MANUAL

FOR

HEALTH MANAGERS

Compiled by

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Introduction

Statistics owes its name to the fact that it had to do with the collection, in ancient times, of the data used for state administration. Nowadays some authors accept two different connotations: Statistics written with a small letter refers to numerical data, while Statistics written with a capital letter refers to the method used for the collection, analysis, elaboration and interpretation of numerical data.

Statistics, in general, has a wider scope of application to many disciplines. When the application comes to specific problems of biology, medicine and public health, it is termed as Biostatistics.

The major reasons why health professional should be interested in Statistics are;

1. Health science is becoming increasingly quantitative where professionals are encountering more quantitative information rather than descriptive one.
2. The planning, conduct and interpretation of much of health research is dependent on statistical methodology.
3. Because literatures are full with reports in which statistical reports are used extensively, the reader should have adequate knowledge of the techniques in order to critically read and evaluate the literatures.

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This manual attempts to give a general over view of the major and routinely applied statistical procedures by health researchers and/or professionals.

The first section of the manual discusses the forms which health data usually occur along with the different techniques of collecting it. Then follows the different techniques of organizing the collected data so that a meaningful information can be generated. Important demographic indexes and points on health services statistics are also presented.

I. Scales of Measurement

Health and medical data occur in various forms. But these can systematically measured using two major scales of measurement; qualitative and quantitative.

The qualitative data is measured by either of a nominal or ordinal scale of measurement.

A nominal or classificatory scale is one in which names, labels or tags are given to distinguish one measurement from the other. Measurements of this type do not have any notion of magnitude in the individual measurement.

Examples:

1. Outcome of disease could be measured as survival or death.
2. National commitment to primary health care may be judged as existent or non-existent.
3. Sex of a subject can be measured as male or female.

An ordinal or ranking scale has the characteristics of the nominal scale with an implicit order relationship among the measurements.

Examples:

1. The extent of lack of food in a certain drought stricken area could be measured as critical, sever, moderate or slight.
2. Social status of patients may be measured as elite, middle class or lower class.
3. The housing condition of a household in a certain rural community can be evaluated as poor, moderate, or good.

Likewise to qualitative data, quantitative data has also two scales to measure it. They are called interval and ratio scales of measurements. Here, details of these scales will not be discussed but rather the different forms in which quantitative data can occur i.e. numerical discrete or continuous data.

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Discrete data occur when the observations are integers that correspond with a count of some sort.

Examples:

1. a mother's history of number of births (parity) and pregnancies (gravidty)
2. number of a dental patient's decayed, missing and filled (DMF) teeth
3. number of episodes of illness a child experiences during some time period, etc

Continuous data is with greatest degree of quantification. Each observation theoretically falls somewhere along a continuum. Most clinical measurements, such as blood pressure, serum cholesterol level, height, weight, and age are on a continuous scale.

II. Methods of Data Collection

Decision makers need information that is relevant, timely, accurate and usable. The information generated in various combinations, is irrelevant, late wrong and unusable. The cost of obtaining, processing and analyzing these data is high. The challenge is to find ways which lead to information that is cost- effective, relevant, timely and important for immediate use. Some methods pay attention to timeliness and reduction in cost. Others pay attention to accuracy and the strength of the method in using scientific approaches. In broad terms we can have two modes of data collection, namely qualitative and quantitative methods.

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1. Qualitative Interviewing of Individual Informants [Soft information]

Qualitative interviews are types of interviews that don't use formal structured questionnaires. Qualitative interviews are not limited by a set of predetermined questions to be asked in a given sequence. In this case an interview guide lists the topics to be covered. If certain questions are agreed upon in advance, they are posed in an open-ended way to encourage free conversation and inserted in the interview as the conversation flows. The information generated by qualitative interviews is not usually in the form of numerical or coded data. It is in the form of notes and summary transcriptions.

Qualitative interviews are usually classified into three broad categories.

(a) Informal, Conversational

The interviewer enjoys complete freedom and flexibility to explore a broad subject with the respondents, who are encouraged to share their views, experiences and information.

The interviewer takes few notes during the interview so as to preserve the informal atmosphere. The interviewer has a purpose in mind and must control the conversation to serve the purpose.

(b) Topic focused interviews [Focus group discussions]

Topic focused interviews are conducted using an interview guide which lists the main topics and sub topics, to be covered. The interviewer asks the respondents in a way that permits a smooth flow of conversation using the guide.

(c) Semi- structured or open- ended interviews

These are the most structured forms of qualitative interviewing. They use open-ended questionnaire which lists specific questions to be asked.

In semi-structured interviews:

i. The questions are open-ended; respondents are encouraged to express themselves fully rather than to respond to a predetermined list of options or choices.
ii. The sequence of the questions is not predetermined. The interviewer is still allowed to exercise his individual skill in controlling the course of the interview.
iii. Additional questions can be asked in order to pursue interesting leads.

Combining Types of Qualitative Interviews

The types of qualitative interviews can be combined in a single investigation. An informal conversational interview can be immediately followed by a set of semi-structured, open ended questions. The following conditions should be considered in the selection of the interview type

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or mix of various types.

The nature of the information required

Obviously, if comparable information on a few specified topic is the requirement, the semi-structured, open-ended format should be preferred. When a deeper understanding of the respondent's perspective is called for, other forms are more suitable.

The skills and expertise of the interviewer

Conversational and topic focused interviews usually require the interviewer to have a high level of interpersonal communication skills and a good grasp of the subject. These skills are often difficult to obtain and cost much. Semi-structured interviews require a somewhat lower level of professional skills.

2. Quantitative Methods of Data Collection [Hard Information]

The statistical data may be classified under two categories, depending upon the sources.

1) Primary data 2) Secondary data

Primary Data: are those data which are collected by the investigator himself for the purpose of a specific inquiry or study. Such data are original in character and are mostly generated by surveys conducted by individuals or research institutions.

Secondary Data: When an investigator uses data which have already been collected by others, such data are called "Secondary Data". Such data are primary data for the agency that collected them, and become secondary for someone else who uses these data for his own purposes. The secondary data can be obtained from journals, reports, government publications, publications of professionals and research organizations. Secondary data are less expensive to collect both in money and time. These data can also be better utilized and sometimes the quality of such data may be better because these may have been collected by persons who were specially trained for that purpose. Such data must be used with great care, because such data may also be full of errors due to the fact that the purpose of the collection of

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the data by the primary agency may have been different from the purpose of the user of these secondary data. Secondly, there may have been bias introduced, the size of the sample may have been inadequate, or there may have been arithmetic or definition errors, hence, it is necessary to critically investigate the validity of the secondary data. We can generally have three methods of for collecting quantitative data.

(i) Direct Personal observation

(ii) Interviews/mailed questionnaires

(iii) Use of documentary sources

1. Direct Personal Observation:

Under this method, the investigator presents himself personally before the informants and collect first hand information.

Advantages:

- ◊ The first hand information obtained by the investigator is more reliable and accurate since the investigator is more reliable and accurate
- ◊ High response rates since the answers to various questions are obtained on the spot.
- ◊ It permits explanation of questions concerning difficult subject matter.

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2. Self-administered, Interviews and Mailed Questionnaires

2.1. Self-administered questionnaire method

Interviews may be less or more structured. Unstructured interview is flexible, the content wording and order of the questions vary from interview to interview. The investigator only have idea of what he/she wants to learn but does not decide in advance exactly what questions will be asked, or in what order.

In other situations, a more standardized technique may be used, the wording and order of the questions being decided in advance. This may take the form of a highly structured interview, in which the questions are asked orderly, or a self administered questionnaire, in which case the

respondent reads the questions and fill in the answers by himself (sometimes in the presence of an interviewer who 'stands by' to give assistance in necessary).

Standardized methods of asking questions are usually preferred in community medicine research, since they provide more assurance that the data will be reproducible. Less structured interviews may be useful in a preliminary survey, where the purpose is to obtain information to help in the subsequent planning of a study rather than factors for analysis, and in intensive studies of perceptions, attitudes, motivation and affective reactions. Unstructured interviews are characteristic of qualitative (non-quantitative) research.

The use of self-administered questionnaires is simpler and cheaper; such questionnaires can be administered to many persons simultaneously (e.g. to a class of students), and unlike interviews, can be sent by post. On the other hand, they demand a certain level of education and skill on the part of the respondents; people of a low socio-economic status are less likely to respond to a mailed questionnaire.

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2.2 Interviews using questionnaire

The investigator appoints agents known as enumerators, who go to the respondents personally with the questionnaire, ask them the questions given there in, and record their replies. Face-to-face or telephone interviews have many advantages. A good interviewer can stimulate and maintain the respondent's interest, and can create a rapport (understanding, concord) and atmosphere conducive to the answering of questions. If anxiety aroused, the interviewer can allay it. If a question is not understood an interviewer can repeat it and if necessary (and in accordance with guidelines decided in advance) provide an explanation or alternative wording. Optional follow-up or probing questions that are to be asked only if prior responses are inconclusive or inconsistent cannot easily be built into self-administered questionnaires. In face-to-face interviews, observations can be made as well.

In general, apart from their expenses, interviews are preferable to self-administered questionnaire, with the important proviso (requirement or condition) that they are conducted by skilled interviewers.

2.3 Mailed Questionnaire Method

Under this method, the investigator prepares a questionnaire containing a number of questions pertaining the field of inquiry. The questionnaires are sent by post to the informants together with a polite covering letter explaining the detail, the aims and objectives of collecting the information, and requesting the respondents to cooperate by furnishing the correct replies and returning the questionnaire duly filled in. In order to ensure quick response, the return postage expenses are usually borne by the investigator.

3. Use of documentary Sources

These refer to the use of documentary sources which usually give us secondary data. The sources of such data may be broadly classified into the following two groups:

3.1. Published Sources

The publications of various organizations are useful sources of secondary data.

Examples

1. Official publications of Central Statistical Authority
2. Publication of Ministry of Health and Other Ministries
3. Newspapers and Journals
4. International Publications like Publications by WHO
5. Records of hospitals or any Health Institutions.

3.2. Unpublished Sources

The records maintained by private organizations. The research scholars in the Universities Research Institute may provide useful data.

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III. Presentation of Data

The data collected in a survey is called raw data. In most cases, useful information is not immediately evident from the mass of unsorted data. Collected data need to be organized in such a way as to condense the information they contain in a way that will show patterns of variation clearly. Precise methods of analysis can be decided up on only when the characteristics of the data are understood.

For the primary objective of this, different techniques of data organization/presentation like order array, tables and diagrams are used.

1) Ordered array

It is a serial arrangement of numerical data in the order of increasing/decreasing. Ordered array is appropriate way of presentation when the data is small in size (usually less than 20).

2) Tables

The use of tables for presenting data involves grouping the data into mutually exclusive categories of the variables and counting the number of occurrences (frequency) to each category.

These mutually exclusive categories, for qualitative variables, are naturally occurring groupings. For example, Sex (Male, Female), Marital status (single, Married, divorced, widowed, etc.), Blood group (A, B, AB, O), Method of Delivery (Normal, forceps, Cesarean section, etc.), etc. are some qualitative variables with exclusive categories.

In the case of large size quantitative variables like weight, height, etc. measurements, the groups are formed by amalgamating continuous values into classes of intervals. It is usually recommended the width of the classes be equal and the number of classes be fixed between 6 and 15 for easy management of the data. There are, however, variables which have frequently used standard classes. One of such variables which has wider applications in demographic surveys is age. The age distribution of a population is described based on the following

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intervals:

<1	1-4	5-9	10-14			
15-19	20-24	25-29	30-34	35-39	40-44	45-
50-54	55-59	60-64	65+			

The age groups 15-19 to 45-49 are often used as the seven age categories for female in reproductive age group.

Based on the purpose for which the table is designed and the complexity of the relationship table could be either of simple frequency table or cross tabulation.

The simple frequency table is used when the individual observations involve only to a sing variable whereas the cross tabulation is used to obtain the frequency distribution of o variable by the subset of another variable. In addition to the frequency counts, the relati frequency, is used to clearly depict the distributional pattern of data. It is percentages of given frequency count.

For simple frequency distributions, (like Table1) the denominators for the percentages are th sum of all observed frequencies, i.e. 210.

On the other hand, in cross-tabulated frequency distributions where there are row and colum totals, the decision for the denominator is based on the variable of interest to be compared ov the subset of the other variable. For example, in Table 3 the interest is to compare th immunization status of mothers in different marital status group. Hence, the denominators fo the computation of proportion of mothers under each marital status group will be the tot number of mothers in each marital status category, i.e. row total.

Construction of tables

Although there are no hard rules to follow, the following general principles should be addressed in constructing tables.

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1. Tables should be as simple as possible.
2. Tables should be self-explanatory. For that purpose
   - title should be clear and to the point(a good title answers what or who? when? where? how classified) and it be placed above the table.
   - each row and column should be labeled.
   - numerical entities of zero should be explicitly written rather than indicated by a dash. Dashed are reserved for missing or unobserved data.
   - totals should be shown either in the top row and the first column or in the last row and last column.
3. If data are not original, their source should be given in a footnote.

Examples

a) Simple frequency table (qualitative data)

Table 1. Overall immunization status of children in Adami Tullu Woreda, Feb. 1995

Immunization status	Number	Percent
Not immunized	75	35.7
Partially immunized	57	27.1
Fully immunized	78	37.2
Total	210	100.0

Source: Fikru T et al. EPI Coverage in Adami Tulu. Eth J Health Dev 1997;11(2): 109-113

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B. Simple frequency table (quantitative discrete data)

Table 2. Prevalence of S. mansoni infection among elementary and junior schools children by age, Wondo Genet, April 1994.

Age(in years)	No. of Examined	No. of positive	Percent
5-9	143	38	26.5
10-14	322	94	29.2
15-19	55	25	46.3
Total	520	157	30.2

Source: Belay, R. et al. Magnitude of Schistosoma mansoni and intestinal helminthic infections among school children in Wondo-Genet Zuria, Eth J Health Dev 1997; 11(2): 125-129.

C. Cross tabulations

Table 3. TT immunization by marital status of the women of childbearing age, Assend town, 1996

	Immunization Status				
	Immunized		Non Immunized		
Marital Status	No.	%	N	%	Total
Single	58	24.7	117	75.3	235
Married	156	34.7	294	65.3	450
Divorced	10	35.7	18	64.3	28
Widowed	7	50.0	7	50.0	14
Total	231	31.8	496	68.2	727

Source: Mikael A. et al Tetanus Toxoid immunization coverage among women of child bearing age in Asse town; Bulletin of JIHS, 1996, 7(1): 13-20

3) Graphs

Appropriately drawn graph allows readers to obtain rapidly an overall grasp of the presented. The relationship between numbers of various magnitudes can usually be seen m quickly and easily from a graph than from a table.

Construction of graphs

The choice of the particular form among the different possibilities will depend on pers choices and/or the type of the data.

- Bar chart & pie chart are commonly used for qualitative or quantitative discrete d
- Histograms, frequency polygons are used for quantitative continuous data.

There are, however, general rules that are commonly accepted about construction of graphs

1. Every graph should be self-explanatory and as simple as possible.
2. Titles are usually placed below the graph and it should again questions what or W Where? When? How classified?
3. Legends or keys should be used to differentiate variables if more than one is shown.
4. The axes label should be placed to read from the left side and from the bottom.

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5. The units in to which the scale is divided should be clearly indicated.
6. The numerical scale representing frequency must start at zero or a break in the line should be shown.

Examples

A) Bar Chart

1) Simple bar chart for a single variable data

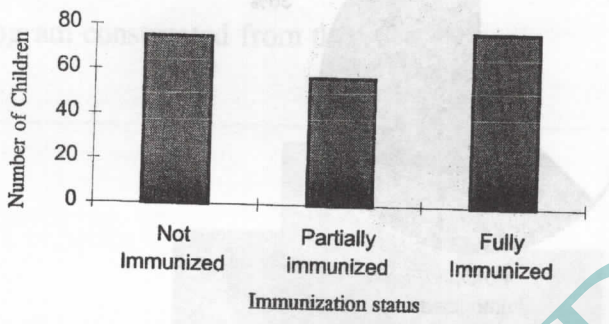
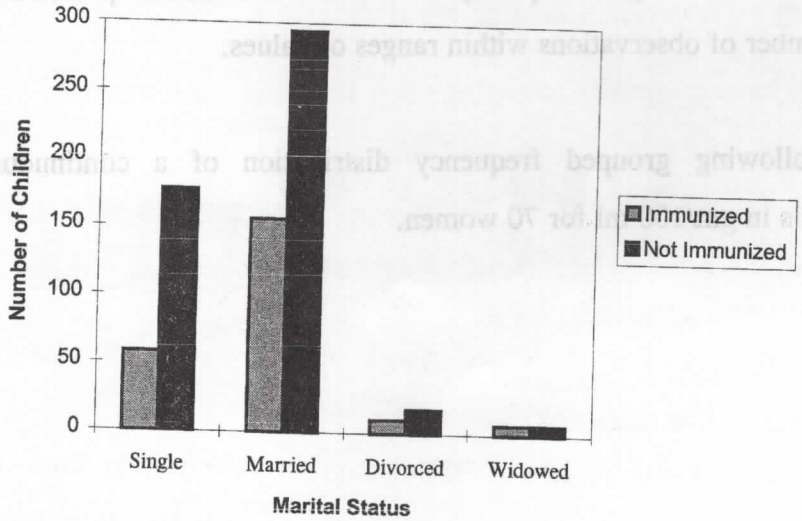


Fig. 1. Immunization status of Children in Adami Tulu Woreda, Feb. 1995

2) Multiple bar chart

- depicts distribution pattern of more than one variable



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Fig. 2 TT Immunization status by marital status of women 15-49 years, Asendabo town, 199

B) Pie-chart (qualitative or quantitative discrete data)

- a circle is divided in to sectors so that the areas of the sectors are proportional to the frequencies.

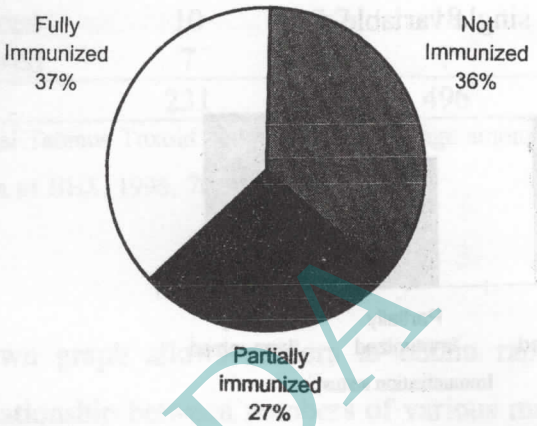


Fig. 3. Immunization status of children in Adami Tullu Woreda, Feb. 1995

C) Histograms & frequency polygons (quantitative continuos data)

For the construction of histograms and frequency polygons, first we need to have a grouped frequency distribution. Grouped frequency distribution is a tabular presentation of continuous data showing number of observations within ranges of values.

Consider the following grouped frequency distribution of a continuous variable, i.e. Hemoglobin levels in gm/100 ml for 70 women.

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Table 4. Hemoglobin levels in g/100 ml for 70 women.

Hemoglobin(g/100ml)	No. of women
8.0-8.9	1
9.0-9.9	3
10.0-10.9	14
11.0-11.9	19
12.0-12.9	14
13.0-13.9	13
14.0-14.9	5
15.0-15.9	1
Total	70

The histogram constructed from this table is:

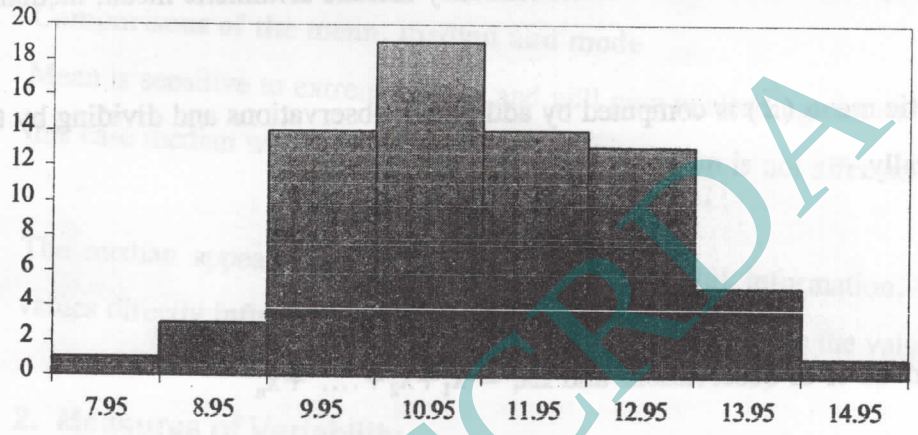


Fig. 4 Hemoglobin Level for 70 women

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IV. Summarization of data

This refers to describing group of quantitative observations with regard to a typical representative value. For the purpose of describing a given set of data and comparing between sets of measurements some summary indices are used.

These summary indices are called descriptive measures and are of two types: Measures of central tendency and measures of variation.

1. Measures of Central tendency

The frequently used measures of central tendency include arithmetic mean, median and mode.

a) **Arithmetic mean** ($\bar{x}$) is computed by adding the observations and dividing by their number. Mathematically,

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Where n= number of observations and $\Sigma x_i = x_1 + x_2 + \ldots + x_n$

b) Median: is the middle value in a set of observations ordered by size.

$$Median = \frac{(n+1)^{th}}{2} \text{ observation value in the array}$$

C) Mode: is the most frequently occurring value in a set of observations.

Example: An investigation of household size in a village gave the following number of persons in each household; 5,3,9,7,1,3,6,8,2,6,6. To calculate the mean, the values are first added: 5+3+.....+6=56 and then divided by number of observations (n=11).

Thus the mean =56/11= 5.1 persons.

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To calculate the median, the values are first arranged in order of their magnitude (this arrangement is called an array) as; 1,2,3,3,5,6,6,6,7,8,9

The value that divides the distribution into halves is the 6^{th} entry, with value of 6 persons. This is the median value for this distribution. When there is an even number of observations the median is the mean of the two central values of the array.

To calculate the mode, in the array of household size the most frequently observed value is 6. The value of the mode is then 6.

Comparisons of the mean, median and mode

Mean is sensitive to extreme values and will give misleading picture of a set of observations, in this case median will be appropriate measure. Median is not affected by extreme values.

The median appears in many cases to ignore useful information. This is because the only values directly influencing the computation of the median are the values around the center.

2. Measures of Variability

These measure the extent of variation among observations. Knowledge of the extent of variability of medical attributes among individuals is essential for understanding, using and interpreting the concept of "normal" values. The major measures of variability are range and standard deviation (variance).

a) Range:- is the difference between the lowest and highest values in a set of observations.

$$R = X_{max} - X_{min}$$

Where X_{max} and X_{min} denote the largest and smallest values respectively

b) Standard Deviation abbreviated to SD is the square root of the arithmetic mean of the squared deviations from the mean,

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Mathematically,

$$SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$

where n - number of sample observations and $\bar{x}$ - arithmetic mean

Variance is the square of the standard deviation.

Example: The range for the previous household size data is

R=9-1=8

A common mistake in using range is to assign two numbers; that is, we are tempted to say that the range is from 1 to 9. This is incorrect statistical usage, since the range should be a single number, 8, not two numbers.

The standard deviation for the same data is computed

$$SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}} = \sqrt{\frac{(5-5.1)^2 + (3-5.1)^2 + \ldots + (6-5.1)^2}{11-1}} = 2.6 \text{ persons}$$

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V. Demography

Definition: Demography is a science that studies human population with respect to size, distribution, composition, social mobility and its variation with respect to all the above features and the causes of such variation and the effect of all these on health, social, ethical, and economic conditions.

Size: is the number of units (persons) in the population at a given time.

Example: The size of Ethiopian population in 1998 is about 56 million.

Distribution: is the arrangement of the population in the territory of the nation. Geographical, residential area, climatic zone, etc.

Example: Distribution of Ethiopian population by Zone.

Structure: is the distribution of a population into its various groupings mainly by age and sex.

Example: The age and sex distribution of the Ethiopian population refers to the number (%) of the population falling in each age group (at each age) by sex.

Change: refers to the increase or decline of the total population or its components. The components of change are birth, death, and migration.

Therefore, demographic statistics is the application of statistics to the study of human population in relation to the essential demographic variables, the source of variations of the population with respect to these variables, such as fertility, mortality and migration. It is indispensable to study these variables through other socio-economic variables such as place of birth, religion, occupation, education, etc.

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Source of demographic data: Mainly there are three sources of information:

1) **Census**: A census of a population is defined as the total process of collecting, compiling, processing and publishing demographic, social and economic data pertaining (relating) to all individuals of a country or delimited territory and which covers a certain period(s).

A census must have five essential characteristics:

1. Individuality: It must compile independent information for every inhabitant of the country.
2. Universality: It must include all the members of the population of an area without omission or repetitions. All persons must be enumerated.
3. Simultaneity: All the individuals must be enumerated in the shortest period of time and at a given moment called the censal period.
4. Periodicity: It must be taken at a regular time interval such as every ten years (the usual inter-censal period)
5. Well-defined: A well-delimited geographic area and a clearly defined period of time.

There are two schemes (methods) of conducting a census:

a) De facto: enumerating people at a place where the individual is found during the censal hour, regardless of whether or not they live in that place.

b) De jure: enumerating people according to their usual place of residence, regardless of whether the person is present or not.

During census information is collected on age, sex, religion, marital status (single, married, divorced and widowed), ethnicity (amara, oromo, keffa, etc.), literacy (literate, illiterate), educational level (elementary school, high school, B.Sc., MSc., MD etc.), occupation (farmer, government employee, merchant, etc.), etc.

Information collected at a household level birth, death in the last 12 months, monthly or average annual income of the family, housing condition and environmental sanitation, health and other basic service facilities (hospital, school, etc.).

All of these information are called personal facts or characteristic of an individual.

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Types of errors in census data

1. Omission and over enumeration.
2. Miss-reporting of age due to memory lapse, preference of terminal digits, over/under estimation.
3. Overstating of the status within the occupation.
4. Under reporting of births due to problem of reference period and memory lapse.
5. Under reporting of deaths due to memory lapse and tendency not to report on deaths, particularly on infant deaths.

2) **Registration**: it refers to the continuous recording of vital events such as births, deaths, migration in or out, marriage, divorces, etc. as they occur in order to obtain reliable information concerning the following types of changes:

   a) changes in the size of the population

   b) changes in the composition of the population.

3) **Surveys**: A survey is a technique based on sampling methods by means of which we try to obtain a specific information from part of the population liable to be considered as representative of the whole. Surveys are made at a given moment, in a specific territory; sporadically and without periodicity for the deep study of a problem.

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Composition of population:

The composition of a population refers to the structure of the distribution of population into its various groupings mainly by age and sex.

Age composition (Age structure): Age structure of the population refers to the distribution of the population by age. It shows the number or proportion of persons in different age categories.

Example: Proportion of persons in the 15-49 age group = $P_{15\text{-}49}/P$

Where $P_{15\text{-}49}$ = population in the 15-49 age group during a given period

P = total population of the area during the same period

Sex structure: It refers to the distribution of the population by sex. It shows the number proportion of persons in each sex. We can learn the sex structure of the population simply computing the proportion of males and females in the population.

Example: Proportion of female population $= P_F/(P_F + P_M) \times 100$

where P_F = total number of female population during a given period.

P_M = total number of male population during the same period.

Age-Sex structure: refers to the number or proportion of each sex in each age group. We c specify the age composition by sex by computing the proportion of persons in a given age gro for both sexes separately. Example, the proportion of males and females for the age group 0-4 c be computed as:

$P^M_{0-4}/P \times 100$ and $P^F_{0-4}/P \times 100$

where P^M_{0-4} and P^F_{0-4} represent male and female population in the 0-4 age group and P to population of the area during the specified period.

Population Pyramids: The Age and Sex Composition of a Population.

The effect of the three factors that influence population structure - births, deaths, and migratio can be shown pictorially by a figure known as a population Pyramid. Population pyramids prese the population of an area or country in terms of its composition by age and sex at a point in tim By convention, males are shown on the left of the pyramid, females on the right, young persons the bottom, and elderly at the top. The pyramid consists of a series of bars, each dra proportionately to represent the percentage contribution of each age-sex group (often in five-y groupings) to the total population; that is, the total area of the bars represents 100% of population. The shape of the pyramid reflects the major influences on births and deaths, plus a change due to migration, over the three or four generations preceding the date of pyramid.

Population pyramid can be constructed either using absolute number or percentages. Wh constructing percent population pyramids, take the percentage from the group total.

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Rates and Ratios:

Ratios: These are single numbers showing the number of times one item contains the other.

Examples

1) **Sex Ratio** (SR): sex ratio is defined as the total number of male population per 100 female population, $SR = P_M/P_F \times 100$ where M and F are total number of male and female populations, respectively.

Age - Specific Sex Ratio: This is the sex ratio specified at a given age or age group. It is computed by restricting the number of males and females to a specific age group. It is expressed as

$$SR_i = P^M_i / P^F_i \times 100$$

where P^M_i and P^F_i are total number of males and females in the i^{th} age group in the population at a given point in time.

2) **Child-Woman-Ratio** (CWR): It is defined as the ratio of the number of children under 5 years of age to women in the child bearing age (usually 15-49).

$CWR = P_{0-4}/P^f_{15-49} \times 1000$ = Number of children under 5 years of age per 1000 women in the child bearing age.

This ratio (CWR) is also known as measure of effective fertility because we are considering survivals up to the age of 4 not the dead once.

3) **Dependency Ratio (DR):** The dependency ratio describes the relation between the potentially self supporting portion of the population and the dependent portions at the extremes of age. This could be the total dependency ratio (TDR), age dependency ratio (ADR) or child dependency ratio (CDR). Total dependency ratio is the ratio of the number of people below age 15 and over 64 to people in the age between 15 to 64, i.e.

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$$TDR = \left[\frac{P_{0-14} + P_{65^+}}{P_{15-64}}\right] \times 100 = \frac{P_{0-14}}{P_{15-64}} \times 100 + \frac{P_{65^+}}{P_{15-64}} \times 100$$

= [child dependency ratio] + [age dependency ratio]

If TDR > 100 => the dependent population is higher that the independent population.

Rates: The term rate appropriately refers to the ratio of demographic events to the population at risk in a specified period.

$$\text{Rate} = \frac{\text{No. of demographic events of interest}}{\text{Population at risk}} \times K$$

where K is a constant mainly a multiple of 10 (100, 1000, 10000, etc.).

Population at risk: This could be the mid-year population (population at the first of July 1), population at the beginning of the year (population on January), or a more complex definition. Period for a rate is usually a year.

A rate could be crude or specific:

It is considered as crude when it shows the frequency of a class of events through out the entire population without regarding to any of the smaller groupings (such as CDR, CBR), where as specific rates implies the events in a particular category of age, sex, race, particular disease, or other classification variables are used (such as ASDR, CSDR, ASSDR, etc.). ***Rates are proportions lying between 0 and 1.***

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Measure of Fertility

1. **Crude Birth Rate** (CBR): is the number of live births in a year per 1000 mid year population in the same year.

$$CBR = \frac{\text{Total number of live births in a year}}{\text{Mid year population in the same year}} \times 1000$$

It is used to indicate the general magnitude of the fertility level but it is sensitive to differences in age structure of the population and the fact that its denominator includes sections of the population not able to give birth.

2. **General Fertility Rate (GFR)**: is the number of births in a specified period per 1000 women aged 15-49 year; i.e.

$$GFR = \frac{\text{Total number of live births during a years}}{\text{Mid year female population aged 15 - 49 years}} \times 1000$$

GFR is general because we are considering all females in the age group 15-49 with out restricting to those have child (children).

3. Age Specific Fertility Rate (ASFR): is the number of live births in a specified period per 1000 women of a given age or age group.

$$ASFR = \frac{\text{Total number of live births registered to women of a given age group during a year}}{\text{Mid year female population on the same age group during the same year}} \times 1000$$

ASFR is used to measure the reproductivity performance of a given age, thus showing variation in fertility by age.

4. **Total Fertility Rate (TFR)**: is the sum of all age specific fertility rates for each year of age from 15-49 years. It is the average number of children that a synthetic (artificial) cohort (a group of persons who share a common experience within a defined period) of women would have at the end of reproduction, if there were no mortality among women of reproductive age; each woman will live up to 49 years of age, about a total of 35 years.

$TFR = \sum_{i=15}^{49} \frac{B_i}{P_i^f} \times 1000$ for single year classification of age

$TFR = 5 \times \sum_{i=1}^{7} \frac{B_i}{P_i^f} \times 1000$ for 5 year age group classification

where $B_i = B_f + B_m$ = birth of both sex at age i of mothers

P_i^f = female population at age (age interval) i.

$TFR = \sum ASFR(i)/1000 = [ASFR(15) + \ldots + ASFR(49)]/1000$

$TFR = 5\sum ASFR(i)/1000 = 5[ASFR(15\text{-}19) + \ldots + ASFR(45\text{-}49)]/1000$

where ASFR(i) is the ASFR of women in the i^{th} age (or age group)

TFR is used as a standardized index for the over all fertility level and measures the total number of children a cohort of women will have at the end of their reproductive age.

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5. **Gross Reproduction Rate (GRR):** is the total fertility rate restricted to female births only. Here, in order to compute the rate we need the ASBRs restricted to female births at each single year of age.

$$GRR = \frac{B^f}{B^t} \sum_{i=15}^{49} \frac{B_i}{P_i^f} \times 1000$$

$$GRR = \frac{B^f}{B^t} \times 5 \sum_{i=1}^{7} \frac{B_i}{P_i^f} \times 1000$$

where $B^t = B^f + B^m$

The above two formulae are used if we don't have female birth and female population by age.

But if we have female birth and female population by age

$GRR = \sum B_x^f / P_x^f \times 1000 = \sum ASFR^f(i)/1000$ for single year age grouping

$GRR = 5 \sum B_x^f / P_x^f \times 1000 = 5 \sum ASFR^f(i)/1000$ for 5 years age grouping

GRR gives the average number of daughters a synthetic cohort (group) of women would have at the end of reproduction, in the absence of mortality.

Example: If GRR = 1000 ➔ the current generation of females of child bearing age will maintain itself on the basis of current fertility rate with out mortality.

If GRR > 1000 ➔ no amount of reduction of deaths will enable it to escape decline sooner or later and if GRR < 1000 the reverse happens.

In the absence of birth data cross classified by age of mother at birth and sex of the new born, we can approximate GRR from TFR, simply by multiplying TFR by proportion of female births on the assumption that sex ratio at birth is constant, i.e., the ratio of the number of male births to the

$$GRR = \frac{B^f}{B^t} TFR = \frac{TFR}{1 + \frac{\text{Male Births}}{\text{Female Births}}} = \frac{TFR}{1 + \frac{B^m}{B^f}}$$

number of female births remains constant over all ages of mothers.

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Note: A rate is Birth Rate if the denominator is the mid year population and it is fertility rate if the denominator is restricted to females in the child bearing age.

Measures of Mortality

1. **Crude Death Rate (CDR)**: is defined as total number of deaths due to all causes occurring in a defined area during a defined period per 1000 mid year population in the same area during the same period.

$$\text{MMR} = \frac{\text{Total deaths of mothers due maternal causes in a year}}{\text{Total births in the same year}} \times 100{,}000$$

Where mid year population is population of the area as of July 1 (middle of the year).

CDR measures the rate at which deaths are taking place from all causes in a given population during a specified period.

2. **Age-Specific Death Rate** (ASDR): is defined as total number of deaths occurring in a specified age group of the population of a defined area during a specified period per 1000 mid year population of the same age group of the same area during the same period.

$$\text{ASRD}_a = \frac{\text{Total Deaths at age or age group a}}{\text{Mid year population at age a}} \times 1000$$

3. **Causes Specific Death Ratio and Rate:** A cause specific death ratio represents the percent of all deaths due to a particular cause or group of causes.

$$\text{CSD ratio for cause c} = \frac{\text{Total deaths from cause c}}{\text{Total number of deaths from all casues}} \times 1000$$

Cause Specific Death Rate (CSDR) is the number of deaths form cause c during a year per 1000 of the mid year population, i.e.

$$\text{CSDR}_c = \frac{\text{Total Deaths from cause c}}{\text{Mid year population at risk in a specified period}} \times 1000$$

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4. **Infant Mortality Rate (IMR)**: measures the risk of dying during infancy (i.e. the first age of life), and is defined as:

$$IMR = \frac{\text{Deaths of children under one year of age in a year}}{\text{Total live births in a year}} \times 1000$$

Live Birth is the complete expulsion or extraction from its mother as a product of conception irrespective of the duration of pregnancy which after such separation show evidence of life, (like breathing, pulsation of the heart, etc.).

5. **Neonatal Mortality Rate (NMR):** measures the risk of dying within 28 days of birth. It is defined as

$$NMR = \frac{\text{Deaths of cldren under 28 days of age in a year}}{\text{Total number of live births in a year}} \times 1000$$

6. **Post - Neonatal Mortality Rate (PNMR)**: Measures the risk of dying during infancy after the first 4 weeks of life, and is defined as :

$$PNMR = \frac{\text{Deaths of children aged 28 days to under one year}}{\text{Total number of live births in a year}} \times 1000$$

7. **Child Mortality Rate (CMR)**: measures the mortality condition among children between 1 to 4 years of age. The rate is actually child death rate. It is defined as :

$$CMR = \frac{\text{Deaths of children in 1 - 4 year age group in a year}}{\text{Mid year population of children 1 - 4 year age group in the same year}} \times 1000$$

8. **Maternal Mortality Rate (MMR):** is defined as the number of deaths of mothers (Dm) due to complications of pregnancy, child birth, puerperium, etc. per 10,000 live births during a year, i.e.

$$MMR = \frac{\text{Total deaths of mothers due maternal causes in a year}}{\text{Total births in the same year}} \times 100{,}000$$

MMR measures the risk of dying of mothers from maternal causes. Ideally the denominator should include all deliveries and abortions.

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Population growth rate: The rate of increase or decline of the size population by natural causes (births and deaths) can be estimated crudely by using the measures related to births and deaths in the following way:

Rate of population growth (rate of natural increase) (r) = Crude birth rate - crude death rate

Based on this rate of increase (r), The projected population (P_t) of an area with current population size of ((P_o) can be projected at some time t in the short time interval (mostly not more than 5 years) using the following formula.

$$P_t = P_o(1+r)^t$$

For example if the CBR=46, CDR=18 per 1000 population and population size of 25,460 in 1998, then

Crude rate of natural increase = 46 - 18 = 28 per 1000 = 2.8 percent per year

The estimated population in 2003, after 5 years, will be

$P_{2003} = P_{1998}(1 + 0.028)^t = 25{,}460(1 + 0.028)^5 = 25{,}460(1.028)^5 = 25{,}460(1.148) =$ 29,230. The population of the area in 2003 will be about 29,230.

VI. HEALTH SERVICES STATISTICS

The term "Health Statistics" include all numerical information relative to vital social facts: births, deaths, diseases and information resulting from them, as well as all other factors or numerical indicators that can serve to explain or facilitate the integral study of health problems in a community.

Health Statistics provide the possibility of controlling information about:

1. The number of persons who become ill or die.
2. The cause of illness and death.
3. The circumstances in which these events occur.
4. The age at which these events occur.

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5. Distribution by sex of the events.
6. Distribution by geographical region.
7. Temporal cycles in the appearance of epidemics.
8. The efficacy of plans for epidemic control.
9. Whether the factors which intervene have a cause-effect relationship or merely a relationship of association.

Health Statistics include:

1. Population Record: This provides information relative to the number of inhabitants, indicating age, sex, race, marital status, and other aspects of the community, such as dwelling place, water supply, educational facilities, Socio-economic conditions, etc.
2. Birth records: These contain individual records of babies born alive and of foetal deaths and neonatal deaths.
3. Mortality Records: These contain individual records which indicate date, cause of death and associated basic diseases and which permit the compilation of indices of general, infants, neonatal or chronic mortality.
4. Morbidity Records: These collect the prevalence and incidence of chronic and infections-contagious diseases by sex, race, age, etc., in the different health areas.

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The implementation of a system which will assure a detailed and complete record of information that Health Statistics must cover is the only way in which the level of health of a nation can be measured, and such information makes possible to compare and draw conclusions so that effective measures can be taken.

Health Statistics permit us to give answers to the following questions:

- Which is the most important cause of death in this area?
- What age shows the highest mortality rate and from which cause?
- In which area does a given disease present a higher-than-average incidence and what conditions prevail in those areas?
- What reduction can be expected to occur as a result of the application of the health

program intended for the modification of those conditions?

- What efficacy has been demonstrated in the measures taken to reduce the incidence of a given disease (cancer of the uterus, breast cancer, lung cancer, diarrhoeal disease, malnutrition, asthma, etc.)?
- Are there any specific area or any periods of time in which out breaks of any given disease are registered preferentially? Which population sectors are the most affected (by sex, age, or geographical situation)?
- Have sufficient resources (hospital facilities, personnel, medicine and equipment) been made available to carry out the programmed health plan?

The principal uses of Health Statistics can be summarized in the following points:

- to describe the health level of the community
- to diagnose diseases of the community
- to find solutions to health problems and to establish the bases for administrative action
- to determine priority for community health programs
- to direct or control the execution of the health program
- to develop procedures, definitions, classifications and techniques such as system archives, sampling schemes, etc.
- to determine the scope and limits of health needs
- to make available to the public reliable information concerning the health situation and health program
- to determine the success or failure of a specific health program and make general evaluations of public health work
- to encourage or stimulate the participation of the community in sanitary tasks, or health problem solving activities.

It is important to stress that the correctness of conclusions and the success of measures deriving from them depends on the quality and reliability of the statistics but also their correct use, i.e., on the techniques and procedures of analysis used for their interpretation.

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The health personnel who is responsible for the health care of a community must begin by making a diagnosis: a diagnosis of the health needs of that community. For this, he/she must be able to define, collect, evaluate, and interpret the relevant data. In the light of this diagnosis he/she will then be able to initiate the treatment - community action - necessary to improve the health of those in his charge. To make a community diagnosis, a health worker must possess statistical skills and be able to define, evaluate, and make use of data of the following kinds, know where they can be found, and if they are not available know how they can be collected and assembled by ad hoc surveys.

a) The age and sex distribution of a population

b) The distribution of a population by its social, environmental, economic, and cultural characteristics

c) The various indices of natality, mortality, and population movement

d) The incidence and prevalence of the more important diseases of an area.

In order to obtain data of the above kind, the health personnel will need to know how to:

i. use simple methods of recording, collecting, coding, and handling data;

ii. calculate appropriate indices from the data, to evaluate their reliability, and to interpret them;

iii. present data in the form of tables, graphs, and diagrams as well as in statistical terms;

iv. classify causes or morbidity and mortality according to the international classification of disease or in other appropriate ways;

v. locate and make appropriate use of data from existing health record sources and from non-health sources (economic, environmental, etc.);

vi. take appropriate samples from the population for ad hoc purposes;

vii. trace the course and identify the source of an outbreak of communicable disease or of a long-term epidemic of non-communicable disease and evaluate the effectiveness of the measures taken to control it;

viii. obtain and use available resources of skill, staff, money, and materials, whether these be local, regional, national, or international

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ix. draw up a list of priorities in the light of the community diagnosis and plan a health program taking into account how those priorities can best be met from the resources available and in relation to the expectations of the people.

The use of documentary sources is attractive because it is a relatively easy way of obtaining data; documents can provide ready-made information both about the study population as a whole, and about its individual members. Documents may also constitute the best or only means of studying past events. The documents may be written, printed, or recorded electronically (computer tapes or disks, tape recording). These include clinical records, 'vital records' (certificate of birth, death, marriage, etc.), other personal records (such as health diaries specially maintained for the purpose of a study), and registers, databases and archives containing aggregations of data on individuals. Use may also be made of documents that provide ready-made statistics and other information on populations (demography, mortality, morbidity, hospitalization rates, etc.).

Documents are frequently the only or the most convenient source of information at the investigator's disposal. But it must be remembered they were generally produced for clinical, administrative or fiscal ends rather than for research purposes, and questions of validity may arise. There may be no uniform definitions (of diseases and demographic or other variables), methods of investigation may be unstandardized or used differently, and the records may not have been maintained with obsessive care that would be expected in a planned investigation. Even if uniform definitions and procedures were used, they may not be consistent with the investigator's concept of variables; for his purposes the data may hence be of low validity. Secondary data should always be used with circumspection.

Administrators at national, regional, and local levels need to know what medical and health services have been provided and how many patients, of what age and sex, have been treated or will need treatment for which disease. Patients' medical records should provide information for both purposes: as a communication vehicle for health personnel involved in the care of patients and as source of administrative data. Therefore, each hospital, clinic, outpatient

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department, and other health institution, need to keep adequate medical records for all inpatients and outpatients.

Confidentiality of medical records: Patients should be assured that personal and private information given to the health worker will remain confidential. It is desirable, therefore, for each country to have laws that enforce this right of the patients. It is recognized that, because of the complexity and the hierarchical organization of health care, records of information given in confidence will inevitably be seen by staff other than those to whom the information was given. For instance, nurses will need to know the names and addresses of the patients in order to be able to make home visits; clerks will need to know some information in order to see that the patient attends the right clinic or to code the final diagnoses. Other staff would also need to know about the patient in order to give the correct treatment. Confidential information should be given only to those who need to know. Laws, or local regulations, should ensure that confidentiality is maintained by all such personnel and provide for penalties for misuse of confidential information.

If a patient's personal data need to be published in a report, the identifying information should be given in coded format, unless permission is granted by the patient to publish detailed identification data.

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Limitation of medical records: The limitation of medical record as a source of health management data are as follows:

a) The information does not cover all episodes of illness that occur in the community. For many illnesses people do not seek medical care. Ambulatory services often have no appropriate health record system, and general practitioners in most countries have not yet been encouraged to keep patient's records in such a way that they can be used for epidemiological purposes.

b) As source of morbidity data, medical records understate the level of morbidity due to conditions that are difficult to diagnose and categorize

c) The patient-related data is subject to vagaries in recall. This applies to all situations where a person is asked for to recall previous events but particularly so in the hospital situation where the person providing the information is usually apprehensive at being in a strange environment.

Hospital Statistics

Despite their shortcomings, hospital statistics provide a useful source of data on the morbidity pattern of a population. Problems in the use of hospital statistics include the bias caused by selective factors influencing hospitalization, including possible Berksonian bias affecting associations between diseases and between diseases and other factors. Another problem is that diagnostic statistics based on hospital records are usually based on the selection of a single one of the patient's diagnoses. There may be little consistence in the way this diagnosis is chosen, even where a standard criterion has been decided upon.

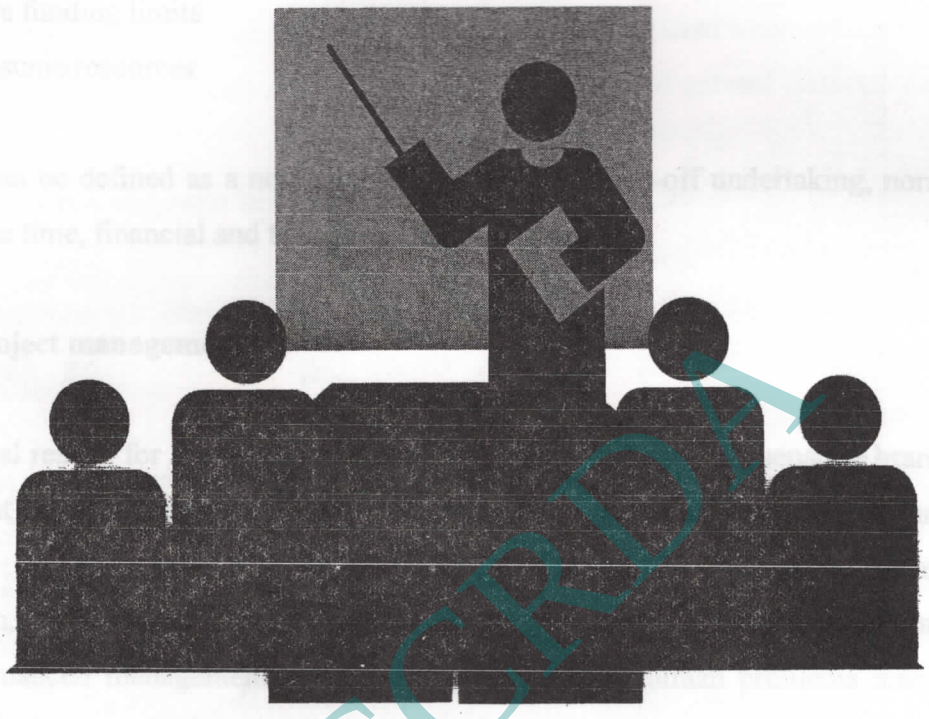
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Participatory Health Project Design and Management



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This note is extracted from Advanced Project Management by F.L.Harrison (3 rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

Health Project Design and Management

What is a project?

A project can be considered to be any series of activities and tasks that:

- Have a specific objective to be completed within certain specifications
- Have a defined start and end dates
- Have funding limits
- Consume resources

A project can be defined as a non-routine, non-repetitive one-off undertaking, normally with discrete time, financial and technical performance goals.

What is project management?

The principal reason for the development of project management as a separate branch of management is that t he traditional forms of organization and management techniques do not handle project work effectively. There is a need for specialized forms of organization, information systems, managers skilled in the techniques of project planning, financial management, control and the particular human problems arising in project work, because of the special characteristics of projects and the problems caused by them.

Project management can be defined as:

The achievement of a project's objectives through people, and involves the organizing, planning and control of the resources assigned to the project, together with the development of constructive human relations with all those involved, both within and outside of the organization.

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Health project

A health project as defined here is a temporary effort to develop and put into operation a new or revised programme (e.g. service programme, training programme health management system health information system). This effort takes the form of a coordinated set of activities for the achievement of well-defined project objectives. Once the project objectives have been achieved, once the service or training programme is set up the project disbands leaving the programme to operate on its own.

A project consists of unique and time-limited activities, whereas a programme takes the form of on-going and repetitive activities.

Typical examples of health projects are the construction of pit latrines, the development of the capacity for the training of Primary Health Care (PHC) workers, and the development of a health management system and structure.

In practice, both time-limited project activities and repetitive programme activities are necessary. A proposal for this kind of effort can be labeled as a project/programme proposal. A typical example would be a proposal for the development of a PHC system and structure in a district and the operation of the PHC system, management and delivery of PHC services, for an initial period of, for example, two years.

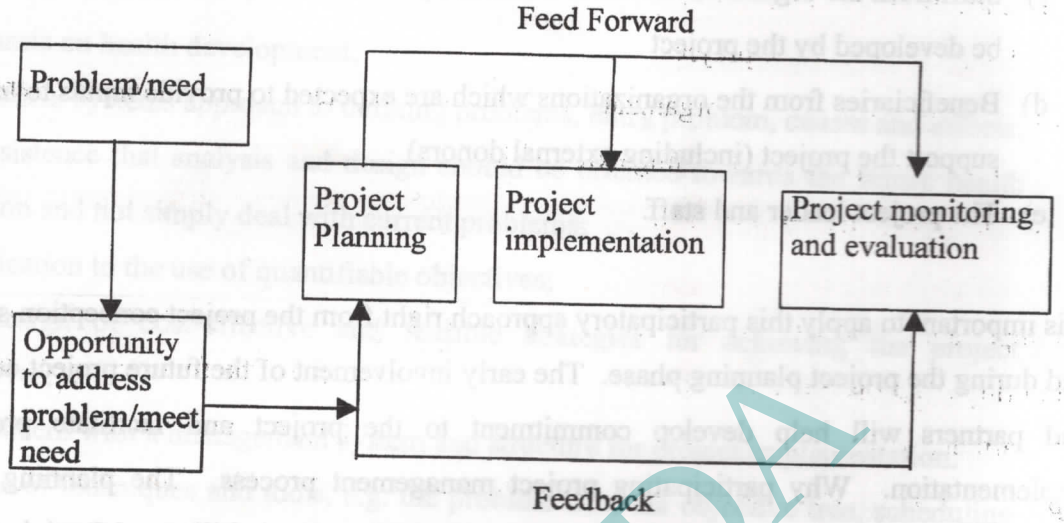
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The project management process

We can break down the project management process into three phases.



There are several possible entry points to project planning

- Existence of a problem or need,
- An opportunity to address the problem and meet the need.

As can be seen from the diagram, the project monitoring and evaluation phase feeds back to the phases of project implementation and project planning.

Nature of the Project management process

We know from experience that not all health projects are successful. Project failures are often due to the fact that important project actors and partners were not fully involved in the project management process, including project planning.

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We advocate strongly a participatory project management process that involves the following:

a) The project beneficiaries
b) Staff from the agency sponsoring the project
c) Staff from the organization which will be responsible for operating the program to be developed by the project
d) Beneficiaries from the organizations which are expected to provide inputs to and support the project (including external donors)
e) The project leader and staff.

It is important to apply this participatory approach right from the project conception stage and during the project planning phase. The early involvement of the future project actors and partners will help develop commitment to the project and facilitate project implementation. Why participating project management process. The planning and management approach advocated in this course emphasizes Equitability and Participatory Development. These attributes provide the framework for a development approach that incorporates popular participation. Further the same attributes provide the basis for the presentation of the development framework on which the project management process outlined in the course entails.

- Equitable
- Power relationship (male Vs female)
- Sustainable
- Participatory

PROGJECT PLANNING

Project planning encompasses project formulation, strategy design and proposal development.

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Special features

This health project planning guideline and procedures are designed to be used in typical development situations. Some of their more important features are:

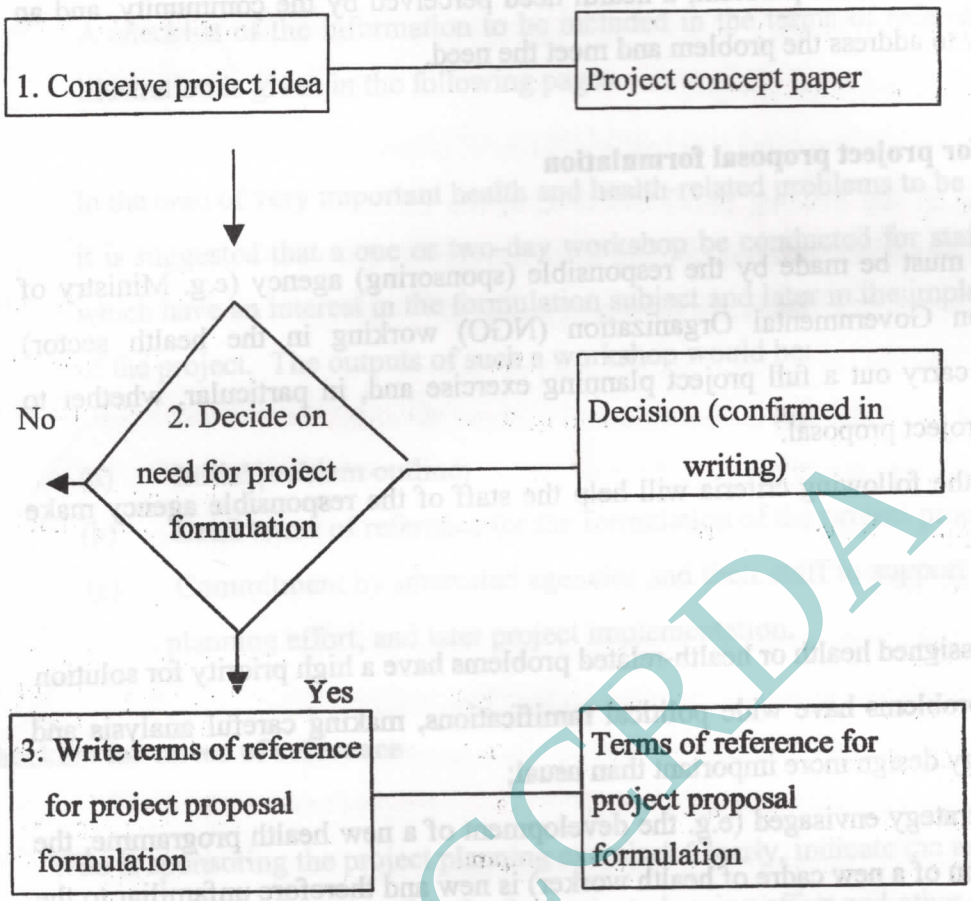
a) Emphasis on health development;
b) A practical systems approach to defining problems, entry problem, causes and effects;
c) An insistence that analysis and design should be oriented towards the future health situation and not simply deal with current problems;
d) A dedication to the use of quantifiable objectives;
e) The design of cost-effective and feasible strategies for achieving the project objectives;
f) The concern with a management system and structure for project implementation:
g) The use of techniques and tools, e.g. the problem tree, the objective tree, scheduling the logical frame work in support of project planning, and al later stages project implementation, project monitoring and evaluations.

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This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

Preparation for Project Proposal Formulation

Preparation for project proposal formulation involves several steps as shown below.



Preparation for project proposal formulation

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The project idea

A tentative health project can be conceived in a number of different ways, e.g. a health or health-related problem, a health need perceived by the community, and an opportunity to address the problem and meet the need.

2. The need for project proposal formulation

A decision must be made by the responsible (sponsoring) agency (e.g. Ministry of Health, Non Governmental Organization (NGO) working in the health sector) whether to carry out a full project planning exercise and, in particular, whether to develop a project proposal.

The use of the following criteria will help the staff of the responsible agency make the decision:

(a) The assigned health or health-related problems have a high priority for solution

(b) The problems have wide political ramifications, making careful analysis and strategy design more important than usual;

(c) The strategy envisaged (e.g. the development of a new health programme, the creation of a new cadre of health worker) is new and therefore unfamiliar to the Ministry of Health;

(d) The strategy envisaged would require the combined efforts of several different Ministries, Ministry departments and donors.

3. The terms of reference for the project proposal formulation

The terms of reference are the most important product to come out of the preparation for project proposal formulation. They describe the subject assigned to the team responsible for the development of the project proposal, specify, the policies that should be adhered to, provide guidance for important steps of analysis and design, and indicate the various types of information that the sponsoring agency expects to find in the project proposal document.

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This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

During this step the sponsoring agency, preferably supported by staff who are likely, to be members of the team responsible for formulating the project proposal should begin to collect selected data and create an initial problem outline.

A checklist of the information to be included in the terms of reference and an illustration is given in the following pages.

In the case of very important health and health-related problems to be addressed, it is suggested that a one or two-day workshop be conducted for staff agencies which have an interest in the formulation subject and later in the implementation of the project. The outputs of such a workshop would be:

(a) Initial problem outline;

(b) Draft terms of reference for the formulation of the project proposal;

(c) Commitment by interested agencies and their staff to support the project planning effort, and later project implementation.

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Checklist for terms of reference

1. Who is sponsoring the project planning exercise? Clearly, indicate the agency, sponsoring agency, responsible for the project planning effort and other offices with an interest in the formulation subject.)
2. What is the nature of the assigned problems?

   The nature of the problems can be defined initially in terms of, for example:

   (a) Disease groups, disease symptoms or consequences of diseases (morbidity Mortality);

   (b) Deficiencies in certain health services (e.g. PHC services, hospital services):

   (c) Environmental deficiencies (e.g. inadequate human excreta disposal, unsafe water).

(d) Problems of infrastructure (e.g. dispensaries, health centres. hospitals. laboratories. training institutions)

(d) Managerial, administrative, logistical and organizational problems.

3. What is the population involved? (age and sex categories, social or economic groups, occupational groups).
4. What is the geographical area involved? (rural, urban, underdeveloped)
5. Among all the existing policies related to the formulation subject, which ones should be considered most binding when developing the project proposal"
6. Which criteria are important for strategy design?
7. Which strategy components are obligatory?
8. What is the time scale for the project?
9. What resource limits exist for the project?
10. (a) Which specific products are expected from the formulation?
    (b) Is there a need for a certain type of project proposal format'.'
11. (a) How is the formulation of the project proposal organized?
    (b) Who are the members of the project formulation team?
    (c) What are the functions of the steering committee responsible for the project planning effort?
    (d) Who are the members of the steering committee?
    (e) What are the financial limits for this project planning effort?
12. What are the relationships of the sponsoring agency with other relevant agencies (see also point 1)?

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This note is extracted from Advanced Project Management by F.L.Harrison (3 rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

Formulation of the Project Proposal

Formulation of the project proposal is the key step in project planning. The main product of this key step is the project proposal document.

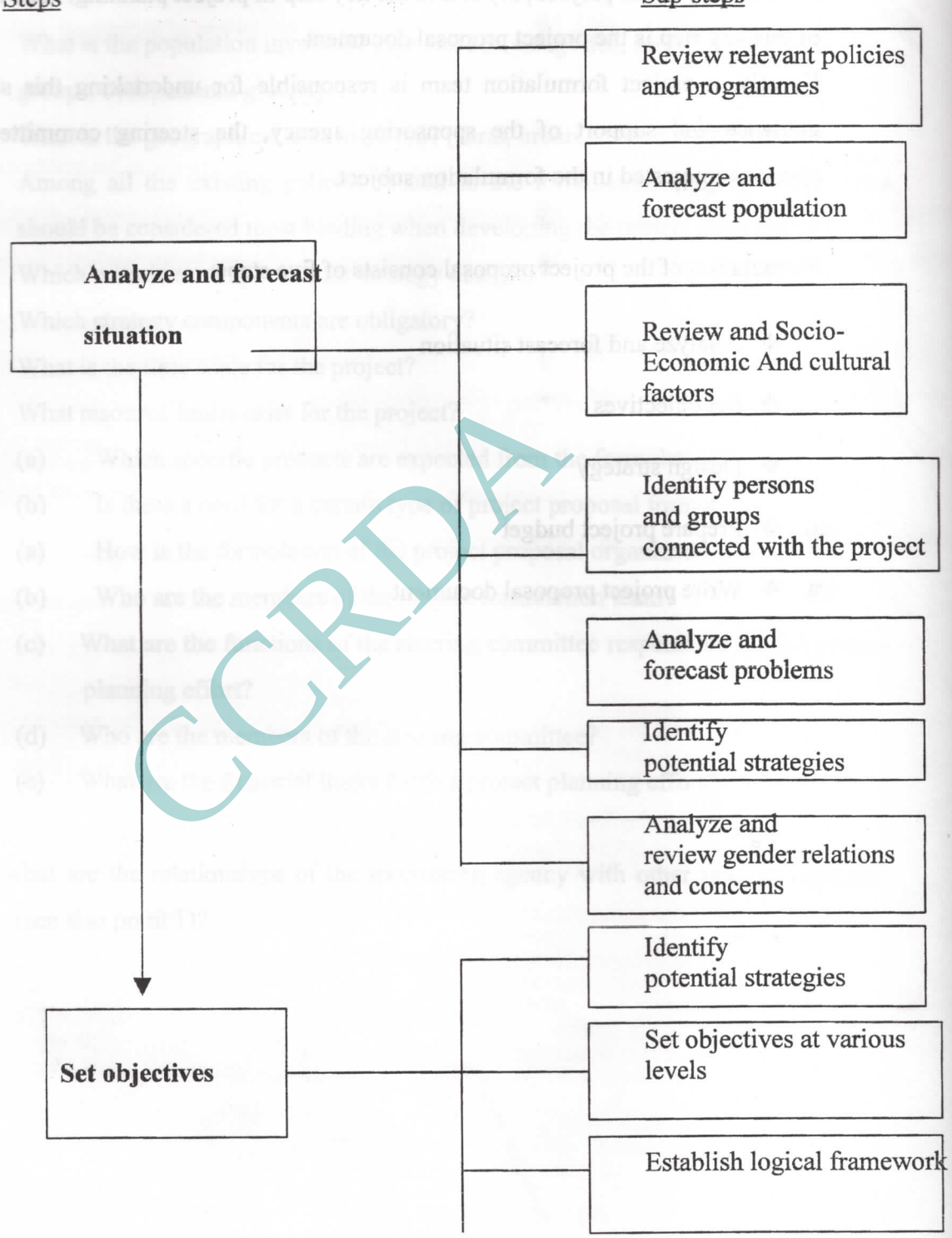
Usually, a project formulation team is responsible for undertaking this step with the guidance and support of the sponsoring agency, the steering committee and other agencies interested in the formulation subject.

Formulation of the project proposal consists of five steps:

- Analyze and forecast situation
- Set objectives
- Design strategy
- Prepare project budget
- Write project proposal document

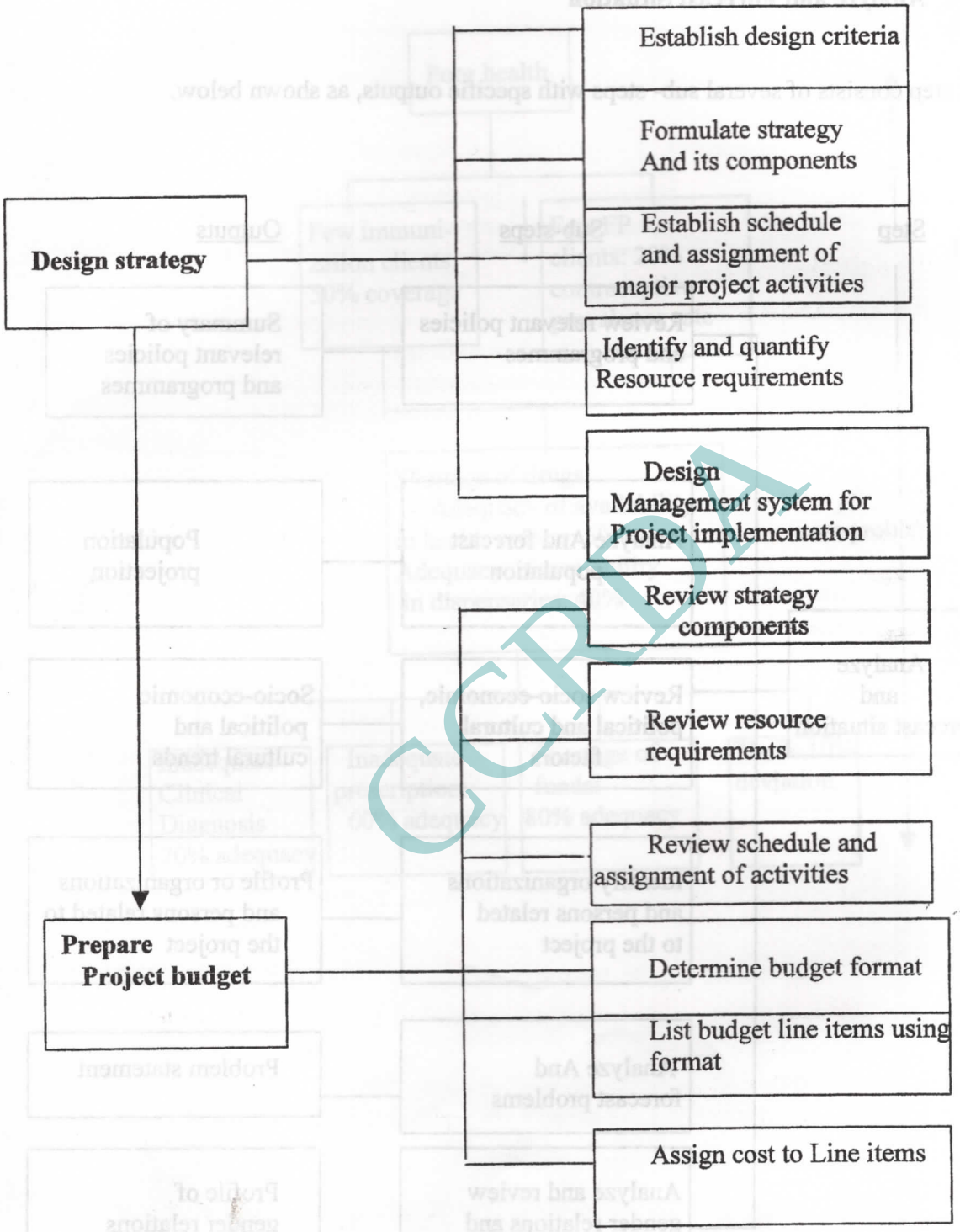
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Some of the steps can be further broken down into sub-steps as shown in the following diagram.



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Formulation of the project proposal: Steps and sub-steps

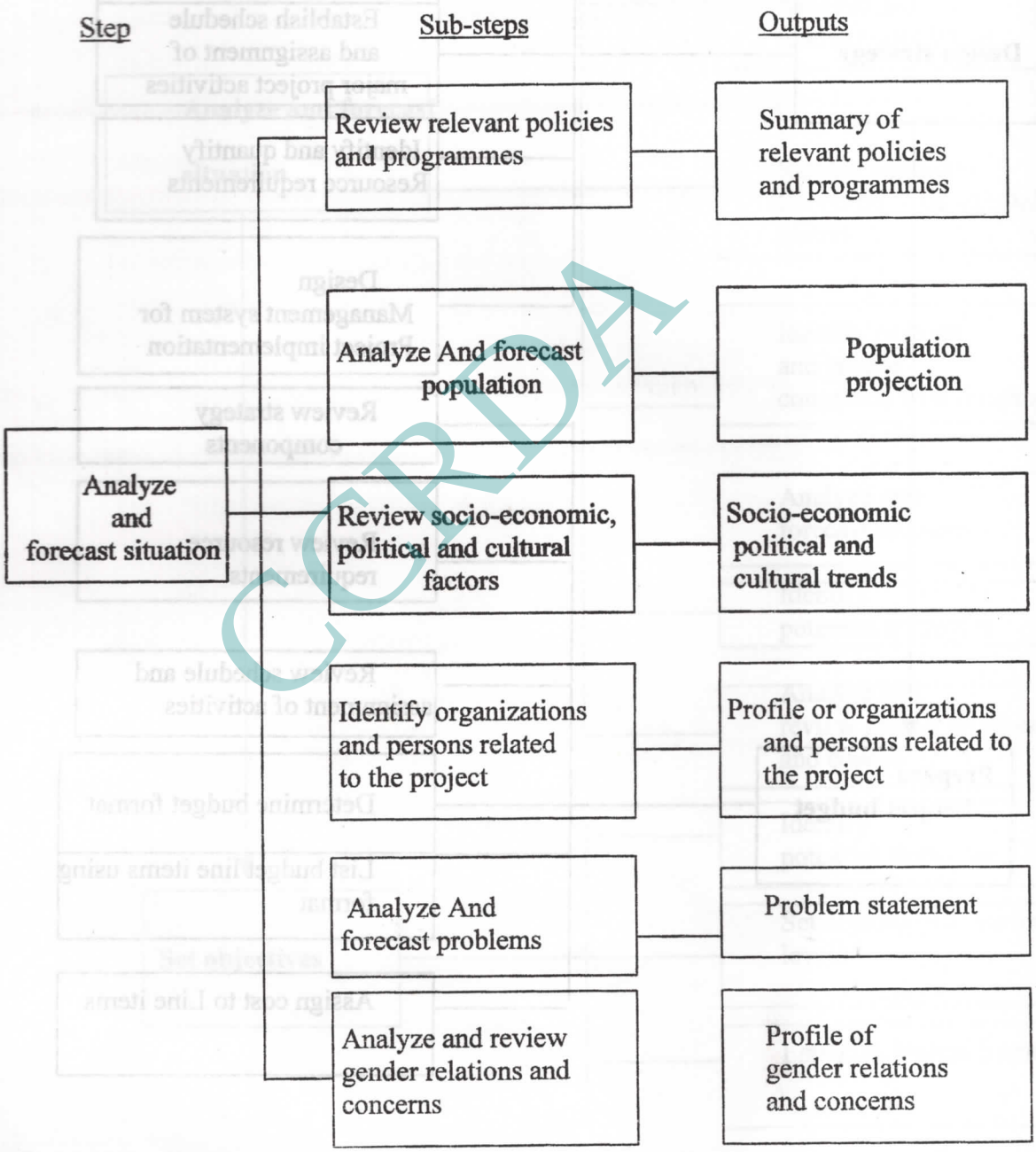


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Formulation of the project proposal: Steps and sub-steps

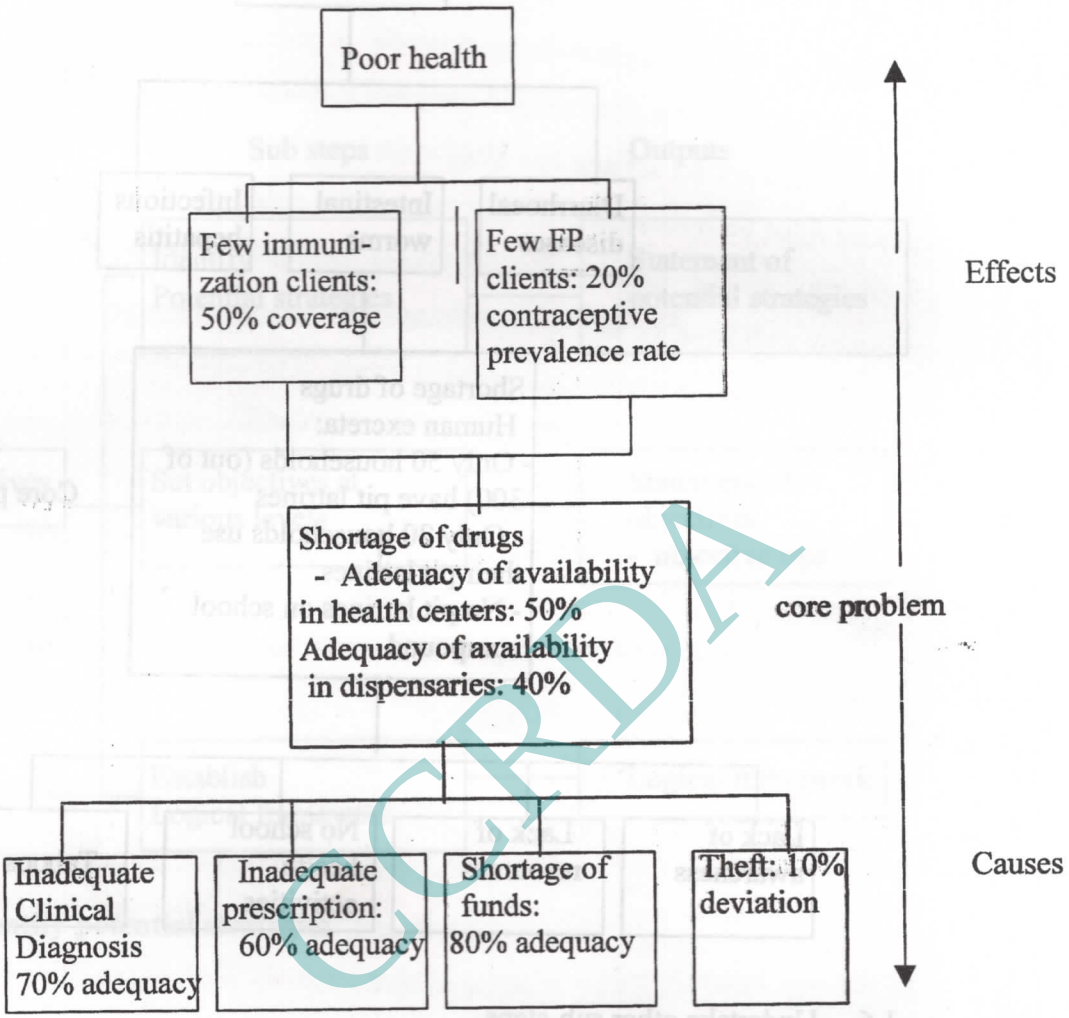
1. Analyze and Forecast Situation

This step consists of several sub- steps with specific outputs, as shown below.



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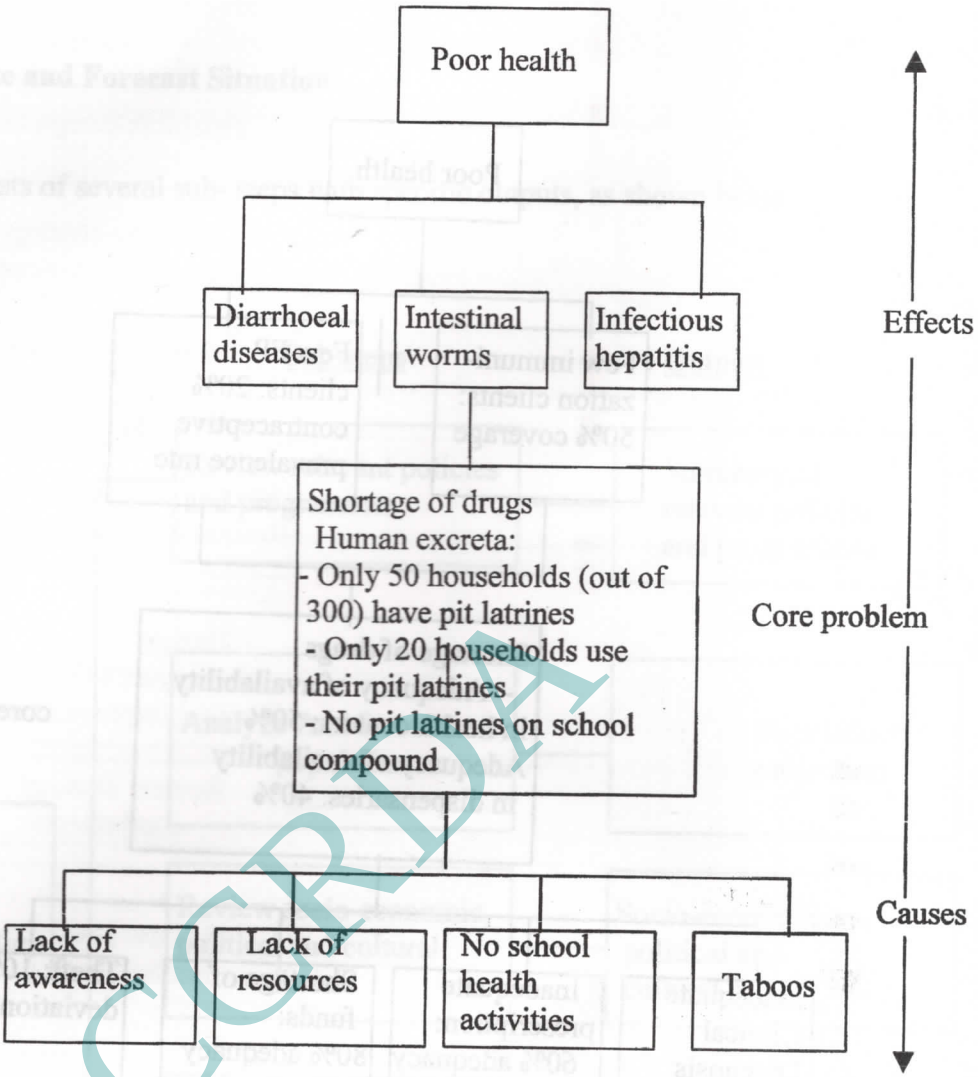
Example: **Problem tree: Drug example**



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This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

Example **Problem tree: Sanitation example**



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1.6 Undertake other sub-steps

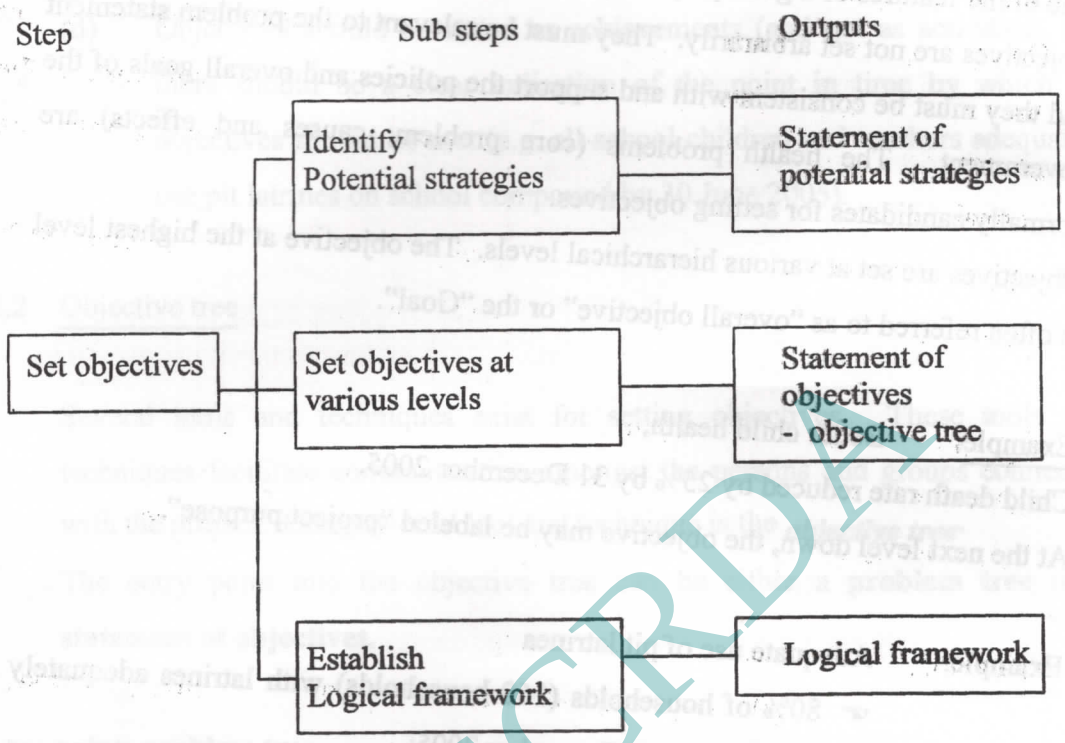
Depending on the nature of the formulation subject the situation analysis may require other sub-steps to be undertaken e.g.:

- Review health management functions, organization and structure
- Review administrative procedures
- Review past implementation experience
- Identify existing resource categories and their sources of funding.

This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

2. SET OBJECTIVES

This step consists of several sub-steps with specific outputs as shown in the diagram below.



2.1. Identify potential strategies

To facilitate the setting of objectives, it is advisable first to identify potential strategies.

The problem tree will help the formulators identify potential alternative strategies and strategy components, and, preferably, make a first choice among these alternatives.

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Note: At this stage the formulators will not undertake any detailed strategy design. This step will be carried out once the three sub-steps of "Set objectives" have been completed.

2.2 Set objectives at various hierarchical levels

One of the features of a good project proposal is that it is objective-oriented. Objectives are not set arbitrarily. They must be relevant to the problem statement and they must be consistent with and support the policies and overall goals of the government. The health problems (core problem, causes and effects) are normally candidates for setting objectives.

Objectives are set at various hierarchical levels. The objective at the highest level is often referred to as "overall objective" or the "Goal".

Example: Better child health,
Child death rate reduced by 25% by 31 December 2005.

At the next level down, the objective may be labeled "project purpose".

Example: Adequate use of pit latrines

- 80% of households (160 households) with latrines adequately use them by 31 December 2005;
- All school children and teachers adequately use pit latrines on school compound by 30 June 2005.

As we move down the hierarchy, objectives are often qualified as "results".

Example: Health education

- Adequate health education design available by 10 August 2005;
- All school children and teachers are aware of the importance of having pit latrines by December 2005;
- 2005% of all households (315 households) are aware of the importance of having pit latrines by 30 September 2005.

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This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

2.2.1 Guide for setting objectives

(a) Objectives must be relevant to the problem statement.

(b) Objectives must be consistent with and support the policies and overall goals of the government;

(c) Objectives must be feasible and measurable;

(d) Objectives should be stated as achievements (and not as activities), and there should be a clear indication of the point in time by which the objectives should be met (e.g. all school children and teachers adequately use pit latrines on school compound by 30 June 2005).

2.2.2 Objective tree

Several tools and techniques exist for setting objectives. These tools and techniques facilitate communication amongst the persons and groups connected with the project. One powerful tool and technique is the ***objective tree***.

The entry point into the objective tree can be either a **problem tree** or a **statement of objectives.**

Entry point: problem tree

How does one make an objective tree? Assuming that a problem tree has been developed during the sub-step "Analyze and forecast problems", the problem tree is the entry point for making the objective tree. The procedure can be summarized as follows:

(i) Restate all problems (effects, core problems, causes) which are usually stated as negative conditions, into positive conditions that are:

- Desirable; and Realistically achievable.

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(ii) Examine the "means-ends" relationship to ensure validity and completeness of the objective tree.

Note: Not every cause-effect relationship of the problem tree automatically becomes means-end relationship.

(iii) If necessary:

- ☞ Review objective statements;
- ☞ Add new objectives if these appear relevant and necessary for achieving the stated objectives at the higher level;
- ☞ Delete objectives that do not seem to be necessary.

(iv) Draw the objective tree as an overview of the project objectives.

Entry point: Statement of objective

The entry point into the objective tree can also be a statement of objectives. Here the purpose is to examine the validity and completeness of a set of objectives and to provide a visual overview.

Basically, the procedure consists of two tasks:

(i) Plot the statements into an objective tree;

(ii) Examine the means-ends relationship to ensure validity and completeness of the objective tree.

In summary, objectives must be **SMART**! Hence they must be:

S - Specific

M - Measurable

A - Achievable

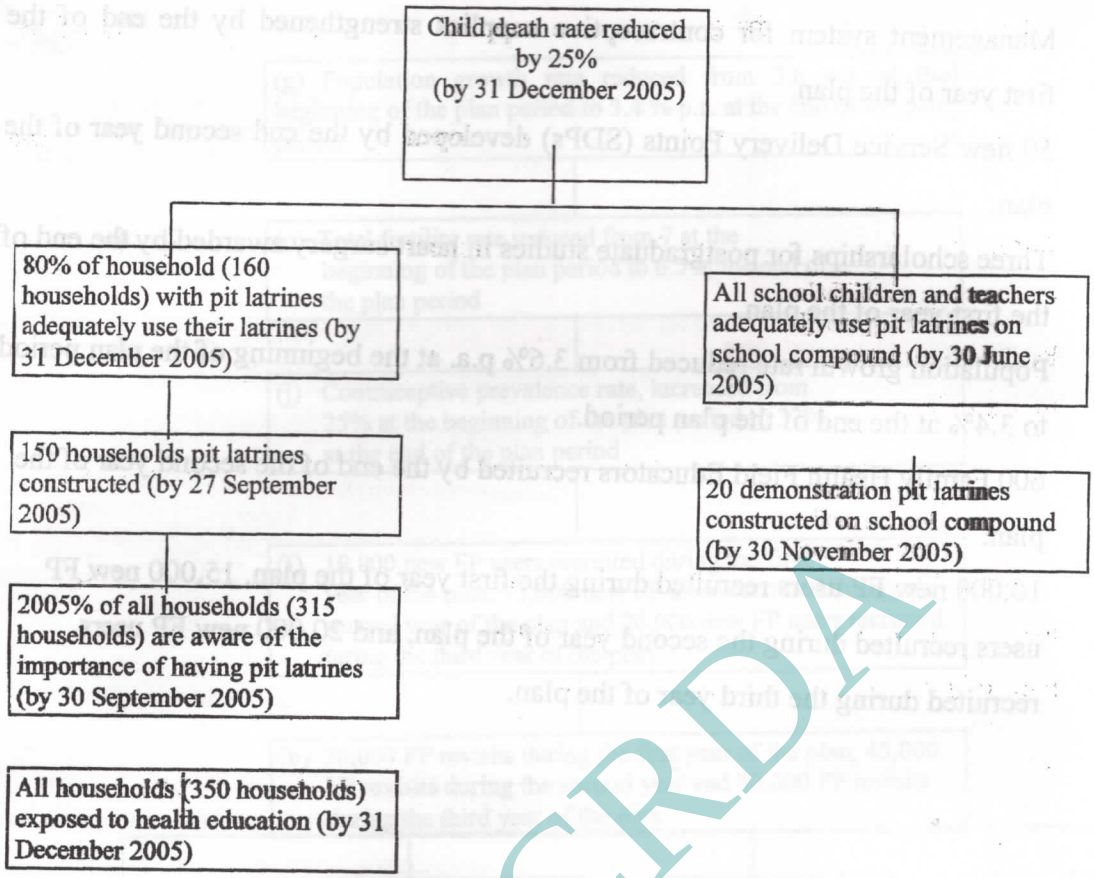
R - Realistic/Replicable

T - Time specific

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This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

Example: **Objective tree: Sanitation example**



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Example: **Objective tree (Entry point: a statement of objectives)**

Task

Plot the following objectives into an objective tree and ensure the validity and completeness of the objective tree.

(a) 150 existing Service Delivery Points (SDPs) for MCH/FP strengthened by the end of the plan period.

(b) 20,000 FP re-visits during the first year of the plan, 45,000 FP re-visits during the second year, and 80,000 re-visits during the third (last year of the plan.

(c) Total fertility rate reduced from 7 at the beginning of the plan period to 6.5 at the end of the plan period.

(d) Management system for contraceptive supplies strengthened by the end of the first year of the plan.

(e) 50 new Service Delivery Points (SDPs) developed by the end second year of the plan.

(f) Three scholarships for postgraduate studies in heart surgery awarded by the end of the first year of the plan.

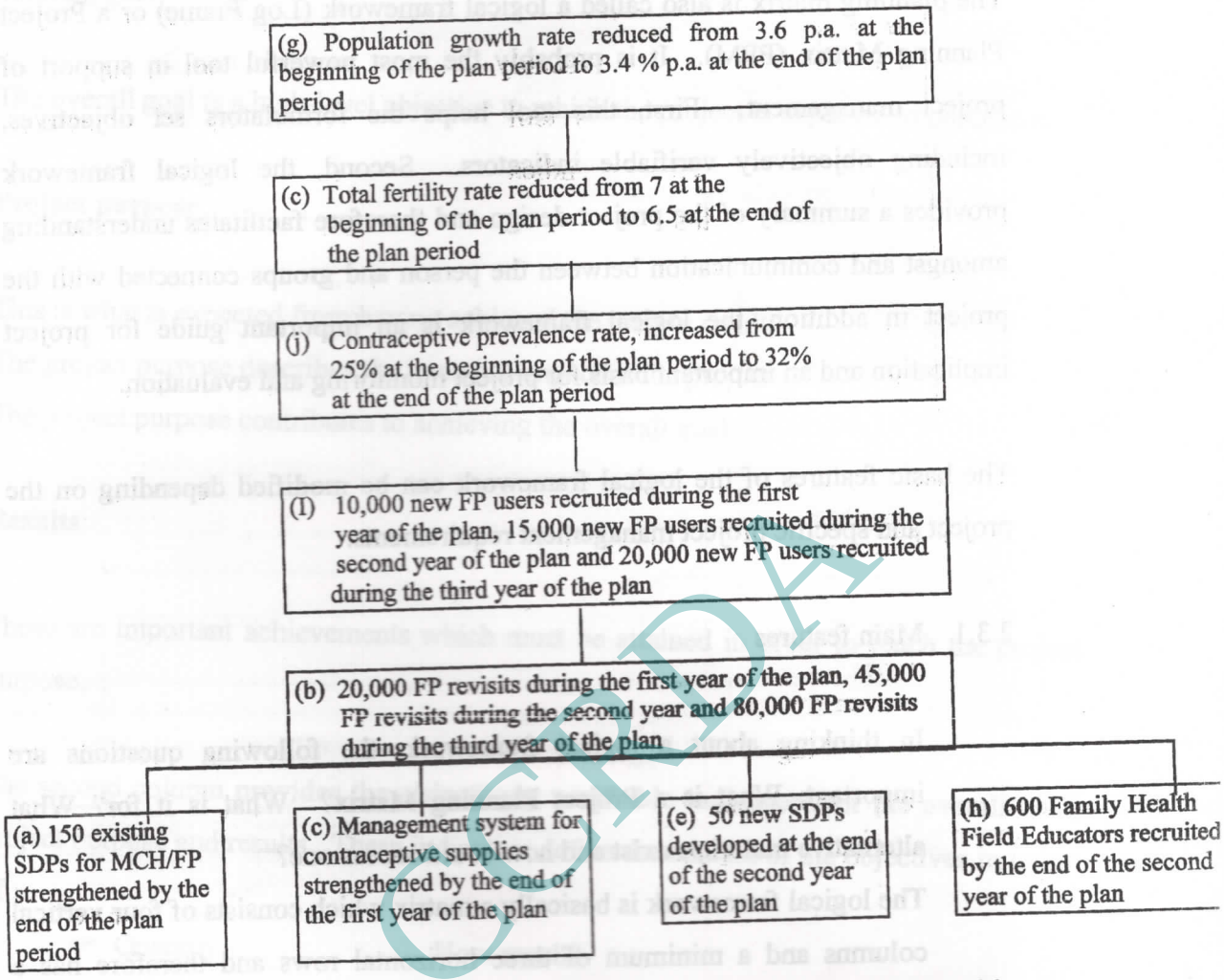
(g) Population growth rate reduced from 3.6% p.a. at the beginning of the plan period to 3.4% at the end of the plan period.

(h) 600 Family Health Field Educators recruited by the end of the second year of the plan.

(i) 10,000 new FP users recruited during the first year of the plan, 15,000 new FP users recruited during the second year of the plan, and 20,000 new FP users recruited during the third year of the plan.

CCRDA

Proposed solution



CCPDA

Note: - Statement (f) has not been plotted into the objective tree since this statement does not satisfy the "means-ends" relationships:

- The objective tree, however, shows the new statement (j) for reasons of completeness. Contraception is a means to (c) "Total fertility reduced".

2.3 Establish the logical framework

The planning matrix is also called a logical framework (Log Frame) or a Project Planning Matrix (PPM). It is probably the most powerful tool in support of project management. First, this tool helps the formulators set objectives, including objectively verifiable indicators. Second, the logical framework provides a summary of the project design and therefore facilitates understanding amongst and communication between the person and groups connected with the project in addition, the logical framework is an important guide for project implication and an important basis for project monitoring and evaluation.

The basic features of the logical framework can be modified depending on the project and specific project management requirements.

2.3.1 Main features

In thinking about a logical framework, the following questions are important; What is a Project Planning Matrix? What is it for? What alternative materials exist and how could access one?

The logical framework is basically a matrix which consists of four vertical columns and a minimum of three horizontal rows and therefore has a minimum of 12 cells, as shown below.

Narrative statement	Objectively verifiable indicators	Means/ sources of verification	Important assumptions
Overall goal			
Project purpose			
Results			

This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

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The first column is a description of:

Overall goal:

The overall goal is a high-level objective to which the project is expected to contribute.

Project purpose:

This is what is expected from having achieved the project results.
The project purpose describes the intended impact of the project.
The project purpose contributes to achieving the overall goal.

Results:

These are important achievements which must be attained in order to reach the project purpose.

The second column provides the **objectively verifiable indicators** for the overall goal, project purpose and results. These indicators define the content of the objectives in terms of :

- Quantity — How much?
- Quality (if possible) — How well?
- Target group — Who?
- Location area — Where?
- Time — By when?

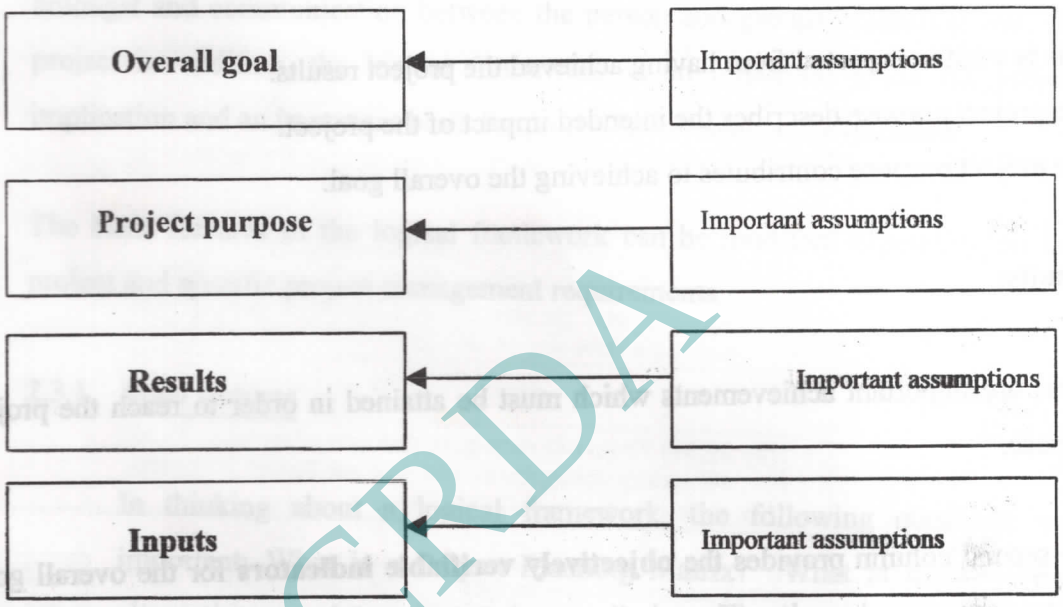
The third column of the matrix is to give a description of the **means/sources of verification**. i.e. what information is to be made available, in what form and, preferably. by whom.

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The fourth column is reserved for the key factors which are outside direct project control but essential for the success of the project (**important assumptions**).

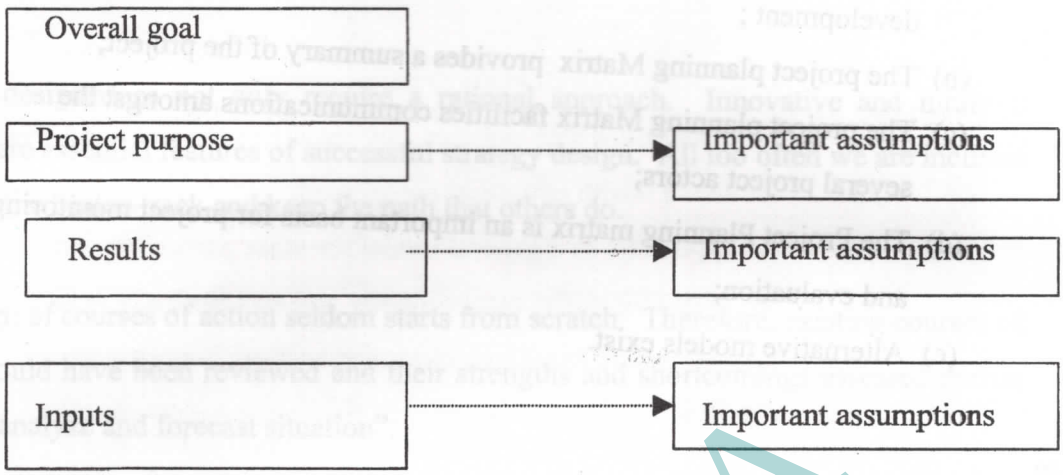
The key factors can be described as important assumptions which are essential for the achievement: of the objectives at the **same level.**

Important assumptions at the same level



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The key factors can also be formulated as important assumptions which, together with the achievement of the lower-level objectives, will make probable the achievement of the higher-level objectives, as shown in the diagram.



Important assumptions for the next higher level

The decision on which method should be applied on the nature of the project and specific donor requirements. Often, preference is given to the method "important assumptions at the same level" since this method is easier to apply.

2.3.2 Procedure

The procedure for establishing a logical frame work consists of the following tasks:

I. First, develop a narrative statement for the overall goal, a statement for the project purpose and then a narrative statement for each result by reviewing the objective tree or the statement of objectives.

II. Determine important assumptions.

Preferably , the important assumptions are phrase as positive conditions (e.g stable social and economic conditions; Village Health Committees willing to cooperate).

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III. Set the objectively verifiable indicator(s) for each objective statement.

➢ In summary:

(a) The project planning Matrix is a powerful tool in support of project development ;

(b) The project planning Matrix provides a summary of the project;

(c) The project planning Matrix facilities communications amongst the several project actors;

(d) The Project Planning matrix is an important basis for project monitoring and evaluation;

(e) Alternative models exist.

Note

- One, or more than one indictor may be set for each objective statement.
- A good indicator defines the contents of an objective statement in terms of quantity and time, and, if possible, also in terms of quality, target group and location or area. The indicators will serve later as important Yardsticks for monitoring project progress and evaluating the impact of the project.
- Identify the sources of information to be used to verify each indicator.
- Indicators for which suitable sources of verification cannot be identified should be replaced.
- The same applies to indicators for which the verification is too expensive.

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This note is extracted from Advanced Project Management by F.L.Harrison (3rd ed); 1996 and Health Project Management Guide by Schulter, P. etal; AMREF. 1992.

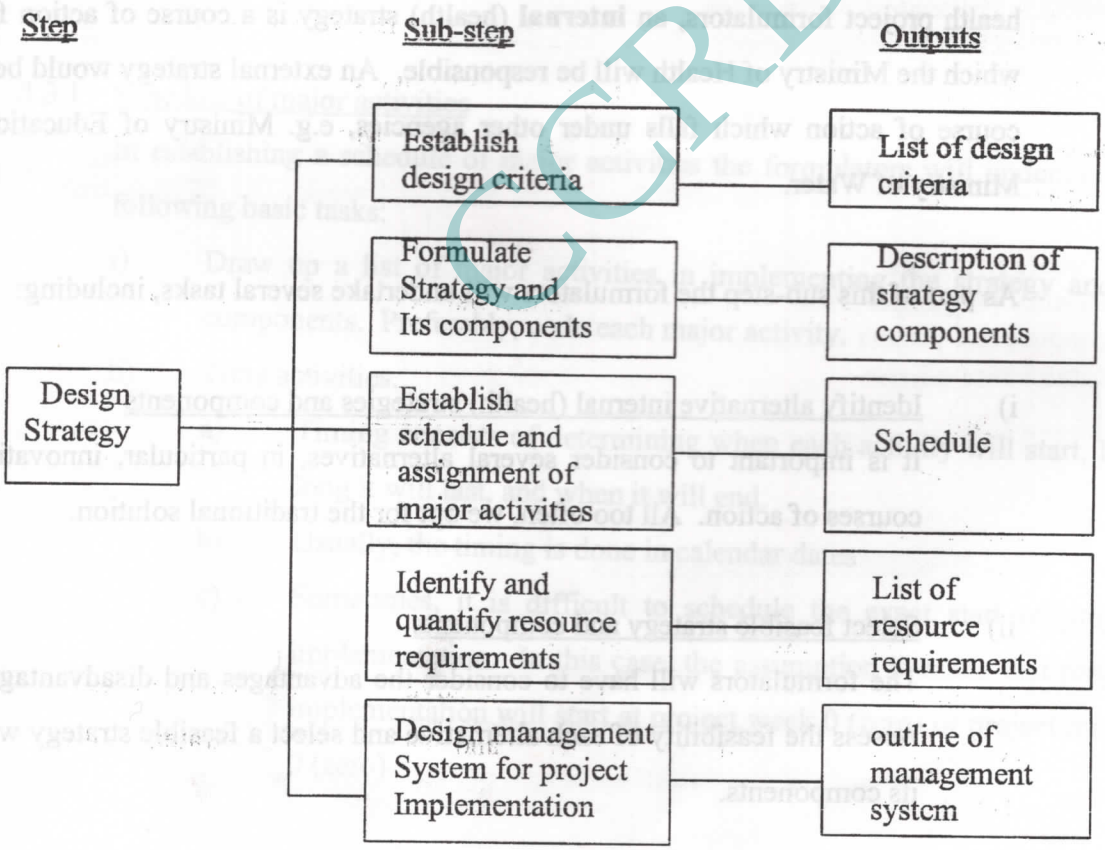
3. DESIGN STRATEGY

A strategy (often labeled "course of action" is a mix of selected techniques, manpower facilities, equipment and supplies for the achievement of one objective or a set of objectives.

Strategy design does not only require a rational approach. Innovative and intuitive thinking are essential features of successful strategy design. All too often we are inclined to follow the beaten track and keep the path that others do.

The design of courses of action seldom starts from scratch. Therefore, existing courses of action should have been reviewed and their strengths and shortcomings assessed during the step "analyze and forecast situation".

The "Design strategy" step consists of several sub-steps with specific outputs, as shown below.



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3.1 Establish design criteria

To guide the process of strategy design, it is often helpful to establish criteria for which the strategy and each strategy component should conform. For example, criteria for strategy design could be:

a) Conform to overall goals of the government;
b) Be compatible with policies, law requirements and regulations;
c) Include a health education component
d) Be applicable as a general model for other parts of the country;
e) Be technologically, institutionally and economically feasible;
f) Promote solutions which minimize cost per beneficiary;
g) Address itself to new sources of funding, e.g. cost-sharing.

3.2 Formulate the strategy and its components

Often, a distinction is made between **internal** and **external** strategies. For us, as health project formulators, an **internal** (health) strategy is a course of action for which the Ministry of Health will be responsible. An external strategy would be a course of action which falls under other agencies, e.g. Ministry of Education, Ministry of Water.

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As part of this sub-step the formulators will undertake several tasks, including:

i) Identify alternative internal (health) strategies and components

It is important to consider several alternatives, in particular, innovative courses of action. All too often, we opt for the traditional solution.

ii) Select feasible strategy and components

The formulators will have to consider the advantages and disadvantages. Assess the feasibility of each alternative and select a feasible strategy with its components.

iii) Outline the selected strategy

The selected strategy and its components should be described. The description should specify the key strategy components.

iv) Identify external strategy

To the extent that health courses of action do not allow for the realization of all objectives, there will be a need to identify and develop external courses of action for which other agencies will be responsible. External courses of action might be more effective in the achievement of some objectives and more economic

3.3 Establish a schedule and assignment of major activities

The strategy design should include a schedule of major activities. Preferably, the schedule should also give other information, in particular, about assignment of responsibilities, and therefore can be labeled "Schedule and assignment of major activities".

3.3.1 Schedule of major activities

In establishing a schedule of major activities the formulators will undertake the following basic tasks:

i) Draw up a list of major activities in implementing the strategy and its components. Preferably, code each major activity.

ii) Time activities.

a) Timing consists of determining when each activity will start, how long it will last, and when it will end.

b) Usually, the timing is done in calendar dates

c) Sometimes, it is difficult to schedule the exact start of project implementation. In this case, the assumption is made that project implementation will start at project week 0 (zero) or project month 0 (zero).

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iii) Record the information derived from the first two tasks (i) and (ii) in the form of a table, shown in the following examples.

Schedule of Major activities (timing: Calendar dates)

Code	Activity Description	Time Start	Duration	Completion
	A. Health education (A.1 – A.3)			
A.1	To reactivate village health committee	09.07.2005	2 weeks	20.07.2005
A.2	To design health education campaign	16.07.2005	4 weeks	10.08.2005
A.3	To conduct health education campaign	13.08.2005	on-going	
	B. Construction of pit latrines (B.1 – B.6)			
B.1	To review pit latrine design			
B.2	To design/decide on pit latrine Specifications	09.07.2005	1 week	13.07.2005
B.3	To select pit latrine sites on school compound	16.07.2005 06.08.2005	2 weeks 1 day	27.07.2005 06.08.2005
B.4	To construct demonstration pit latrines	27.08.2005	13 weeks	30.11.2005
B.5	To select household pit latrine sites	10.09.2005	on-going	
B.6	To construct household pit latrines	01.10.2005	39 weeks	27.09.2005
	C. Management (C.1 – C.6)			
C.1	To recruit/post project staff	18.06.2005	2 weeks	29.06.2005
C.2	To establish work plan and assign duties	02.07.2005	1 week	06.07.2005
C.3	To procure materials	02.07.2005	on-going	
C.4	To monitor project progress	02.07.2005	on-going	
C.5	To conduct end-project evaluation	18.11.2005	2 weeks	29.11.2005
C.6	To communicate/liaise	02.07.2005	on-going	

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3.3.2 Schedule and assignment of major activities

Project formulator may want to establish a schedule with additional information, e.g. sequence of activities, important activity products and, in particular, assignment of activities. This implies that the formulators will undertake the following tasks:

(i) Draw up a list of major activities involved in implementing the strategy and its components. Code each major activity;

(ii) Sequence the activities, i.e. indicate the order in which the activities will be carried out;

(iii) Time activities in terms of start, duration and completion;

(iv) Indicate important activity products;

(v) Assign responsibilities for each activity. A distinction can be made between primary and secondary responsibility;

(vi) Record all this information in the form of a table, as shown in the examples.

At a later stage, project monitoring can be facilitated by three additional columns in the schedule outline, as shown below.

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Example: **Schedule and Assignment of major activities**

Code (1)	Activity Description (2)	Sequence	Start (4)	Duration (5)	Completion (6)	Activity product (7)	Responsibility Primary (8)	Responsibility Secondary (9)
A.1	A. Health education (A.1 – A.3) To reactivate village health committee		09.07.09	2 weeks	20.07.2005		Project leader	Health Educator
A.2	To design health education campaign	A.1	16.07.2005	4 weeks	10.08.2005	Health education design	Health Educator	- Health Assistant - Country Health inspector
A.3	To conduct health education campaign	A.2; C.3	13.08.2005	On-going			Health Educator	- Project Leader - Health Assistant
	B. Construction of pit latrines (B.1 – B.6)							
B.1	To review pit latrine design		09.07.2005	1 week	13.07.2005		Project leader	Health Assistant
B.2	To design/decide on pit latrine specification	B.1	16.07.2005	2 weeks	27.07.2005	Pit latrine specifications	Project leader	District Health Inspector
B.3	To select pit latrine sites on school compound	A.2; B.2	06.08.2005	1 day	06.08.2005		Health Assistant	Headmaster
B.4	To construct demonstration pit latrine	B.2; B.4 C.3	27.08.2005	3 weeks	30.11.2005	20 demonstration pit latrines constructed	Health Assistant	- Project Leader - Headmaster - PTA
B.5	To select household pit latrine sites	B.2	10.09.2005	On-going			Health Assistant	- Project Leader - VHC
B.6	To construct household pit latrines	B.5; C.3	01.10.2005	9 week	27.09.2005	- 50 pit latrines (by 29.03.2005) - 50 pit latrines (by 28.06.2005) - 50 pit latrines (by 27.09.2005)	- Households - Health assistant - VHC	Project Leader
	C. Management (C.1 – C.6)							
C.1	To recruit/post project staff		18.06.2005	2 weeks	29.06.2005		- DHMT - PSC	- Farms management - CDC
C.2	To establish work plan & assign duties		02.07.2005	1 week	06.07.2005		Project leader	- Health Educator - Health Assistant
C.3	To procure materials		02.07.2005	On-going			Project leader	PSC
C.4	To monitor project progress		02.07.2005	On-going		Project progress reports	Project leader	- PSC - DHMT
C.5	To conduct end-project evaluation		18.11.2005	2 weeks	29.11.2005	End-project evaluation report	- DHMT - CDC - Donor	- PSC - Project leader
C.6	To communicate/liaise		02.07.2005	On-going			All project actors	

CHD

3.3.3 Gantt chart

The timing, start, duration and completion, can be displayed in a bar or Gantt chart, as shown in the table.

Gantt chart

Code	Activity Description	2005 J	J	A	S	O	N	D	2005 J	F	M	A	M	J	J	A	S	O	N	D
	A. Health education (A.1 – A.3)																			
A.1	To reactivate village health committee																			
A.2	To design health education campaign																			
A.3	To conduct health education campaign																			
	B. Construction of pit latrines (B.1 – B.6)																			
B.1	To review pit latrine design																			
B.2	To design/decide on pit latrine specification																			
B.3	To select pit latrine sites on school compound																			
B.4	To construct demonstration pit latrine																			
B.5	To select household pit latrine sites																			
B.6	To construct household pit																			

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Code	Activity Description	2005 J	J	A	S	O	N	D	2005 J	F	M	A	M	J	J	A	S	O	N	D
	C. Management (C.1 – C.6)																			
C.1	To recruit/post project staff																			
C.2	To establish work plan & assign duties																			
C.3	To procure materials																			
C.4	To monitor project progress																			
C.5	To conduct end-project evaluation																			
C.6	To communicate/liaise																			

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3.4 Identify and quantify resource requirements

As a next step in strategy design, the formulators will identify and quantify the resources which will be required to implement the strategy and its components.

As part of this effort, the formulation will undertake the following tasks:

3.4.1 Identify the resource requirements;

3.4.2 Group the requirements by resource categories (e.g. capital, staff, training, materials and other supplies

3.4.3 Identify possible sources of funding;

3.4.4 Qualify the resource requirements;

3.4.5 Consolidate the information on resource requirements into a list of resources.

3.5 **Design a management system for project implementation**

This sub-step consists of several tasks, including:

3.5.1 Outline the project organization, e.g. the location of the project, responsibilities and authority of the Project Leader, organizational entity and person the Project Leader is reporting to, other organizational entities and the persons to be involved in the implementation of the project, and duties and composition of the project steering committee or project coordination committee.

The organizational chart is a useful tool for displaying and communicating the project organization.

3.5.2 Outline the project control (monitoring) system by selecting important control indicators and deciding on the contents of project progress report

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their frequency and distribution, their review, feedback and corrective actions, if necessary.

3.5.3 Outline the proposed evaluation efforts, such as mid-term evaluation and final project evaluation, the nature of these evaluation efforts (e.g. participatory), and the important evaluation indicators (e.g. the indicators listed in the logical framework).

3.5.4 Make suggestions for project termination, e.g. activities to be undertaken by others once the project ends, reassignment of staff, reallocation of other project resources.

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Project monitoring

QUARTERLY PROJECT PROGRESS REPORT

Responsible: Project Leader

Control indicators: Quarterly work plan, quarterly financial forecast

Contents: Title page

Table of contents

Summary

Achievements (for each strategy component)

- Progress against plan
- Reasons for progress being in line with plan or for significant deviations form plan
- Sustaining/corrective actions

Financial statement of expenses

Work plan (for next reporting period)

Financial forecast (for next reporting period)

Distribution:

- District Health Management Team (3) copies)
- Project Steering Committee (1 copy for each member)
- Donor (1 copy)

Date of distribution:

At the latest - Quarterly by the 15th of the month following each quarter at the latest.

Review:

- District Health Management Team (mainly, Medical Officer, District Health Inspector, district Health Educator) with feedback to the Project Leader, latest at the end of the month of distribution of the quarterly project progress report
- Project Steering Committee (during monthly meeting) with feedback to Project Leader within two weeks of the meeting

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- County Development Committee (during monthly meeting) with feedback to Project Leader within two weeks of the meeting.

3. PREPARE PROJECT BUDGET

4.1 General

The next step in project proposal formulation is the preparation of the project budget. Local and donor budgeting procedures will dictate is format.

In preparing the project budget, the formulators will express the project requirements (e.g. equipment, staff, training, materials and supplies) in terms on money

4.2 Capital and recurrent expenditures

Usually, a distinction is made between capital (development) expenditures (e.g. buildings, equipment, vehicles) and recurrent expenditures (e.g. staff, drugs and other medical supplies, vehicle running).

4.3 Time phases

The budget should be presented in whatever time phases are used locally or required by the donor (normally, one-year periods).

For projects with a duration of less than two years, a single period may be sufficient.

4.4 Source of funding

If there is more than one source of funding, information should be provided about the funding of each budget line item.

Occasionally, the formulators will prepare a donor project budget in the donor's currency and list the other inputs provided locally.

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The listing of all the local inputs helps the donor perceive the commitment of the organization sponsoring the project.

4.5 Inflation

Provision should be made for inflation, preferably at the level of each budget line item.

Alternatively, present prices can be used for budgeting and an additional budget line item added to cover inflation.

In countries with a high inflation rate, it may be advisable to prepare only a donor project budget in the donor's (hard) currency. Usually, Inflation in the recipient country causes a continuous revaluation of the hard currency or a devaluation of the local currency), i.e. the hard currency will buy more local currency.

4.6 Contingencies

Depending on existing budgeting procedures, the project budget may include a line item for contingencies. Contingencies should not exceed 10%. Some donors are only willing to accept a 5% contingency component.

4.7 For each budget, budget notes should be included. Budget notes serve to explain unusual line items and/or explain budget totals are calculated. Budget notes facilitate communication between the donor and the person submitting the budget.

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Example: **Donor project budget**

Item		US$
CAPITAL EXPENDITIURES		
A. Construction and equipment		
A.01.	Up-grading of dispensary	12, 000
A.02.	8 bicycles @ US$ 400	3, 200
A.03.	4 Sets of construction tools @ US$ 2,000	8, 000
	Sub-total	23, 200
RECURRENT EXPENDITURES		
B.	**Staff**	
B.01	Project Leader – 18 person months @ US$ 120	2, 160
	Sub-total	2, 160
C.	**Materials and supplies**	
C.01	150 slabs @ US$ 300 (households are expected to Contribute 20% of cost)	36, 000
C.02	Building/roofing materials – 150 pit latrines @ US$ 400 (households are expected to contribute 20% of cost)	48, 000
C.03	Health education materials	8, 000
C.04	Petrol, oil maintenance for pick-up – 15,000 km @ US$ 1	15, 000
	Sub-total	107, 000
D.	**Evaluation**	
D.01	Evaluation consultant - 20 person days @ US$ 60	1, 200
D.02	1 2-day evaluation workshop attended by 10 participants - a total of 20 workshop participant days @ US$ 40	800 720
	Sub total	2, 720
	Total	135, 080
E.	**Contingencies** (5%)	6, 754
	Grand total	**141, 834**

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Donor budget (contd)

Other inputs

The Ministry of Health, farms management and the community are expected to provide a large range of inputs, including:

Ministry of Health

- 1 4-whell pick-up (on loan)
- Health educator – 18 person months
- Health Assistant – 18 person months
- Health education materials
- Guidance and supervision by the District Health Management Team (mainly, by Medical officer, District Health Inspector, District Health Educator) and Country Health Inspector.

Farms' management

- 1 typewrite (on loan)
- 1 Duplicator (on loan)
- 1 typist – 18 person months.

Community (households)

- Labor (for digging pit latrine holes and developing superstructure)
- Financial contribution to slab cost (20% of cost)
- Financial contribution to cost of building/roofing materials (20% of cost).

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Writing the Project Proposal Document

1. Introduction

During the previous project planning steps, sub-steps and tasks the formulators will have produce most of the information to be included in the project proposal document. Therefore, writing the document consists mainly of editing the various previous outputs and putting them together into the form of a project proposal document.

There are, however, the following three remaining tasks which the formulators should undertake:

1.1 Assess the feasibility of the proposed project

It is important to assess the project's feasibility and the problems that are likely to arise during project implementation.

Often, a distinction is made between technical, institutional and financial feasibility.

1.2 Write the justification for having the project

The main justification for the project is the expected achievement of its objectives, overall goal, project purpose and results.

Beneficiaries should be listed, e.g. primary, secondary and distant beneficiaries.

2. Format

Often, local and donor requirements will dictate the format of the project proposal document. If there are no specific requirements, the formulators will have to decide on an appropriate format. An example of such a format is provided.

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3. Steps in proposal writing

Review and complete the logical framework

The formulators will review and complete the logical framework by including information about the major project activities and the main resources required for project implementation.

3.1 Select a proposal development time table.
3.2 Draw a proposal development time table.
3.3 Review project proposal guideline.
3.4 Determine budget for project proposal (resource requirements) writing exercise.
3.5 Review terms of reference.

Feasibility assessment

A distinction is made between technical, institutional and financial feasibility.

Technical feasibility

- The technology for constructing pit latrines is well established;
- The soil structure is suitable for the proposed design;
- The nature of the project conforms to the expectations of the community and households
- The existing health education materials are not easily understood by the community, hence, the challenge to develop more effective materials concerning sanitation.

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Institutional feasibility

- The District Health Management Team, The Country Development Committee, the Village Health Committee and the farms' management support the project;
- All necessary construction materials are available on the local market;
- All the proposed project staff, including the Project Leader, are available.

Financial feasibility

- A potential donor has been identified to provide the funds budgeted in the donor project budget;
- The Ministry of Health, District Health Management Team, has committed itself to providing the inputs as proposed in the project proposal document;
- The farms' management has already made preliminary arrangements to provide a typist and basic office equipment;
- The community and households are willing to provide the required labor. There is, however, some doubt whether all households can make their contributions to the cost of slabs and construction and roofing materials. The farm's management has indicated that they may be willing to give interest-free loans to some of their workers to allow them to pay their contributions.

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Contents of Project Proposal Document

- Title page
- Map of project area (if appropriate)
- Table of contents
- List of figures/diagrams (if relevant)
- List of illustrations (if relevant)
- List of abbreviations (if relevant)
- Acknowledgment (if appropriate)

SUMMARY (1 page out of 20)

The summary provides information about the major points of the project proposal document.

BACKGROUND (1 page out of 20)

This first chapter of the document describes the history of the proposed project and the development of the proposal document.

SITUAITON ANALYSIS (4 pages out of 20)

This chapter contains the information which was produced during the project planning step 'Analyze and forecast situation". e.g.:

2.1 Relevant policies and programmes
2.2 Target population
2.3 Socio-economic and cultural factors
2.4 Persons and groups connected with the project
2.5 Problem statement

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PROJECT OGJECTIVES (1 page out of 20)

This chapter provides information about the objectives at various hierarchical levels, e.g. overall goal, project purpose and results.

STRATEGY (8 pages out of 20)

This chapter will include several sections:

4.1 Design criteria

4.2 Strategy components

4.3 Schedule and assignment of major activities

4.4 Resource requirements

4.5 Management system for project implementation

PROJECT BUDGET (1.5 pages out of 20)

The project budget gives information about the expected project cost, preferably, by calendar or financial year and source of funding.

Feasibility, Justification and Sustainability (1.5 pages out of 20)

Preferably, this chapter will have the following three sections:

6.1 Feasibility

6.2 Justification

6.3 Sustainability

LOGICAL FRAMEWORK

The logical framework provides a summary of the project design in terms of project objectives (overall goal, project purpose and results), major project activities and inputs, and feasibility (important assumptions)

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Project Implementation, Monitoring And Evaluation[1]

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[1] This note is extracted from Health Project Management Guide: Schulter, P. et al. AMREF; 1992.

1. PROJECT IMPLEMENTATION

Once the project proposal has been developed, the challenge ahead is successful project implementation. "Successful" here means that the project activities have been competed on schedule and within the budget, that the project objectives have been reached, and that these objectives have a reasonable chance of being sustained after the project it terminated.

While technical activities performed in projects are usually of adequate quality, experience shows that the management of these activities is often weak.

The range of health projects is very large. Therefore, it is difficult to provide general guides of technical project activities. All project managers, however, have to perform much the same kinds of managerial activities, whether their project has to do with starting an AIDS control program, constructing pit latrines, or up-grading a dispensary to a health center.

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Managerial steps

In implementing a health project the project manager and his staff will perform several important managerial steps. Some of these steps and tasks are unique (e.g. initiating project implementation); others are repetitive ones (e.g. communicating.

Important managerial steps

1. To initiate implementation
2. To specify details of work
3. To clarify responsibilities, Authority and relationship
4. To obtain resources
5. To direct project implementation

1. **To initiate implementation** (project pre-implementation)

To initiate project implementation is similar is similar in some ways to the project formulation steps "Prepare for project implementation".

Initiation of project implementation involves:

a) Obtaining approval of the project proposal document;

b) Selecting and appointing the project team leader, who will assume responsibility for the subsequent steps of project implementation?

If there is a delay in appointing the project leader, those bearing the interim responsibility for project implementation will have to:

c) Begin the recruitment of the project staff;

d) Prepare an operational budget, for example, the first year of the project.

e) Order equipment and supplies that take a long time to procure.

Prior to the recruitment of the project staff, job descriptions will have to be prepared. Job descriptions are one way of helping to distribute tasks among the members of the project team.

2. **To specify details of work**

In planning the project, a design of the courses of action including a (tentative) schedule of activities, was produced (see Annex 6). Now that the proposal has been approved, it becomes necessary to review the design and to elaborate on the project plan by specifying in more detail the project activities to be carried out. Essentially, this effort consists of:

a) Preparing a details schedule and assignment of activities;

b) Determining details resource requirements, when necessary;

c) Preparing an operational budget, if required.

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3. To clarify responsibilities, authority and relationships

The project proposal document usually provides an outline of the project organization. Often, there is a need to clarify the responsibilities, authority and relationships of the various project actors, e.g. the project team members, the units of the existing organization, and ad-hoc committees such as the Project Committee.

Once responsibilities and authority have been clarified, the project team leader will communicate the project organization to the relevant organizational units.

4. To Obtain resources

Once the work to be done has been specified in detail and scheduled, and the resource requirements determined (see step 2), then, if the process has not already begun (see steps 1(c), 1(d) and 1(e), the project team leader must begin the process of obtaining the resources. Basically, three types of resources are involved: funds staff equipment and supplies.

Delay in receiving resources has often been an obstacle to timely project implementation. Therefore, the project manager will spend time on clarifying and scheduling the administrative steps for obtaining equipment and supplies and other resources.

5. To direct project implementation

Once the project has been initiated and organized, the project team leader is responsible for directing project implementation. This involves several steps as follows:

1. Carrying out leadership functions
2. Motivating staff
3. Making decisions
4. Communicating

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5. Time Management
6. To terminate the project

To direct project implementation: main steps

a) **Carrying out leadership functions**

This means that he/she has to satisfy the needs of the:

- ☞ Tasks (project): To complete the project activities and to meet the project objectives.
- ☞ Individual (staff): To look after each individual member of the project staff so that he/she is happy and fulfilled.
- ☞ Group: To take care of the team and maintain its spirit of morale and cooperation.

b) **Motivating staff**

Hand in hand with leadership goes the need for motivating the project staff to perform their assigned tasks efficiently. To do so successfully, the project manager must gain an understanding of what motivates the people he is working with-economic considerations, pride, social status, work satisfaction.

c) **Making decisions**

In the course of project implementation, the project team leader is face with many situations, which require him to make decisions.

Depending on his own values system and the situation, the project manager will make the decision using central authority, the democratic method or the consensus method.

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d) **Communication**

In the project content, communication can be viewed as a process that takes place:

i. From the project team leader;
ii. From and through the supervisory structure:
iii. Among the project staff
iv. From and through committees and liaison officers

Further, communication must be a tow-way process: the project manager must be prepared to listen as well as talk.

The content of communication will, of course, vary with each project and situation. Certain subjects and acts of communication are desirable in any project. These include:

i. Orienting and leading project staff;
ii. Motivating project staff;
iii. Monitoring project implementation;
iv. Revising and publishing schedules of activities;
v. Communicating decisions.

Well-prepared and conducted meetings offer good opportunities for communication.

e) **Time management.**

In the course of the project implementation, a management is not only concerned about managing his time but is also concerned about the time management practices of those who work for and with him. When trying to help someone manage their time better the following rules are recommended:

- List of goals and set priorities
- Make a daily "To DO" list

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- Start with A's not C's
- Ask this question often; "What is the best use of my time right now?"
- Handle each piece of paper only once
- DO IT NOW!

For successful time management, the following tools are recommended.

- ☞ Time log
- ☞ Contingency planning focussing on potential problems, priority analysis and step to prevent or limit
- ☞ Meeting guidelines - focussing on Why, Who, Desired outcomes, Type, Agenda items, Length, Process. Roles and Decision.
- ☞ Meeting feedback form - focussing on goals, control, flow of implementation, conflict, climate and resource
- ☞ Action planning focussing on key time management problems and potential solutions.

(f). To terminate the project

There are several conditions for project termination:

i. **Normal terminations:** Occurs when the project objectives have been reached within the appropriate time and resource limits,

ii. **Late termination:** Occurs when there have been delays in reaching the project objectives.

iii. **Early termination**: Can occur because of, e.g. unforeseen changes in the external environment (financial crisis); changes in the Government's policies and priorities; the emergence of new, more attractive project proposals.

iv. **No termination:** Occurs when the project organization becomes a normal functioning unit of the existing organization.

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Normal termination involves:

a) Specifying the future steps to be taken by others as a consequence of the project and its termination;
b) Reassigning the project staff;
c) Summarizing experiences gained in the project (that may be helpful and relevant to future projects);
d) Preparing and distributing of the final project report)

Project Monitoring and Evaluation

Project monitoring and evaluation is a managerial function that keeps the project functioning as planned.

Monitoring and evaluation are conceptually similar in that both involve the same steps. In practice, the following differences can be observed:

a) Project monitoring focuses mainly on short-term project activities and results whereas evaluation is more concerned with the project's objectives and long-term achievements and impact.
b) Project monitoring is a continuous process, whereas evaluation is more periodic.

Usually, the project proposal document provides an outline of the project monitoring and evaluation system. Often there is a need to design the system in more detail prior to starting the continuous process of monitoring and the more periodic project evaluation.

Monitoring and evaluation indicators

As part of the review of the project monitoring and evaluation system and its more detailed design, monitoring and evaluation indicators should be selected. The bases for the selection of indicators are the project proposal and the detailed

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specifications of work (detailed schedule and assignment of activities, detail resource requirements, and operational budget).

The monitoring process and the more periodic evaluation involve the following steps:

1. Gathering information
2. Comparing project status with the plan
3. Determining cores of Deviation
4. Deciding and taking corrective action

Project Monitoring and Evaluation steps

1. **Gathering information**

During this step information on the status of the project will be collected. Often the information has to be quantified. This is so whenever the indicators are themselves defined in quantitative terms together with a time dimension (e.g. 5-3-day workshops on health project management conducted by 31 January 2000, five demonstration pit latrines constructed by 30 June 2000).

2. **Comparing project status with the plan**

The quantitative and qualitative information corresponding to the relevant indicators during the previous step is compared with the plan. This consists of straightforward matching, of the observed with the planned.

3. **Determining causes of deviations**

During this step the emphasis is on finding important causes of significant differences (deviations) and cases that are potentially correctable.

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A point worth remembering is that very few things have one single cause. So it would not be wise to seek only one cause of significant difference between the observed and the expected.

4. Deciding on an taking corrective action

A monitoring and evaluation system serves little purpose if it does not include the taking of corrective action when needed.

There are several types of action to be decided and taken:

a) No action may be taken when no deviation is found, or when the deviation is insignificant;

b) To make changes in the project schedule, manpower assignments or project budget which fall within the authority of the project manager;

c) To make changes in the project schedule, manpower assignments or project budget which require the approval of the supervisory organization of the project

d) To make changes in the project objectives or project strategy design which usually require approval at a higher hierarchy level;

e) To terminate the project (early project termination).

Disregarding the types of action to be decided on and taken, alternative corrective actions-together with their advantages and disadvantages-should be considered and outlined. The decision will be made by the project manager or the supervisory authority of the project.

Once the decision has been taken, the project manager has to determine who needs to be informed on the decision, how and when, and then to transmit the decision to those who are affected by it.

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Note: In summary, monitoring and evaluation is a managerial function that keeps Project functioning as planned. However, it is also important to note that the management of the implementation process must not only be concerned with successful completion of project activities but should also be concerned with project impact. It is therefore to incorporate impact evaluation in the monitoring process. Impact evaluation focuses on the assessment of the over all project impact. It is the analysis (both qualitative and quantitative) and the communication of the change associated with a set of planned interventions. It focuses on the process (as opposed to activity), relates to the overall development goal, focuses primarily on the participants and their environment (as opposed to the project actors), requires knowledge of where participants were (baseline) and builds commitment for development. It is an integral part of the development process and should therefore be planned for during the project planning process.

CONDUCTING MEETINGS

Meetings are an important part of health work, especially when the work is with rural communities.

Meetings are of many kinds and can have many different purposes. There may be large public meetings, often held in the open air, to encourage people to express their views on a new project or to inform them of a development and explain it. There may be small meetings with community leaders to try to identify health problems and needs. There may be meetings with special groups such as patients or mothers for purposes of health education.

Also, there are regular meetings of the health team. Sometimes there are committee meetings to make decisions on a new project, or educational meetings or discussion groups to learn new skills and new approaches.

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PREPARING FOR A MEETING

When preparing for a meeting it is useful to check the following items:

- Purpose
- Main subject matter
- Type of meeting
- Persons expected and size of meeting
- Place, time and duration
- Who is convening and organizing the meeting
- Announcements or information about the meeting.

Purpose

Be very clear about the purpose of the meeting. For a formal committee, the agenda should make the purpose clear. But it is worthwhile to write a brief summary of the purpose a meeting, stating what it is hoped to achieve.

Some meetings are called to communicate information, others to exchange views and idea and other to make decisions about plans or activities.

Subject matter

If a meeting is to be useful, each person present must have as much information as possible about the subject to be discussed. Also, the facts, principles, or ideas needed as a basis for the discussion, must be provided some time before the meeting by means, perhaps, or a book or a working paper, or at the meeting by a knowledgeable person or even a tape recording or a film.

If the subject for discussion is new to several members of the group, ask someone who has special knowledge of the subject to give a brief introduction.

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Type of meeting

Meetings may be small or large, formal or informal, and open to all or only to members

Persons expected and size of the meeting

The size of a meeting determines largely how a subject is discussed, whether everybody takes part and whether it is easy to reach decisions or take votes.

Two or three persons may be enough when the group is meeting to share idea meant for a spontaneous discussion in a search for new idea ("brainstorming"). A group of five to seven persons is usually large enough to provide a reasonable variety of experience and personalities and, at the same time, enable everyone to participate. As a general rule, for group discussion or training, a group should not exceed ten to twelve persons. Even with this number a small sub-group may form and dominate the discussion, while the rest of the group become more observes.

Large meetings are more useful for communicating information and exchanging views than for discussion or making decisions.

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Place and time

The choice of meeting place should avoid the need for most people to come a long way; a hall or open square at the center of a village is often the best place.

The time chosen for a meeting is very important. For a public meeting it must suit the public rather than the organizer. People who work all day prefer evening or weekend meetings.

Announcements or information about the meeting

All those concerned with a meeting should know about it in plenty of time. Notices about a meeting may be in the form of written invitations, but usually they are posted up on walls and doors of public places such as shops or offices.

Conducting a meeting

How a meeting is conducted depends on whether it is large or small, formal or informal. The chairman should be someone who can promote good communication.

In conducting any meeting the following factors are important:

Communication

The success of any meeting depends on the quality of communication.

If the purpose is to pass on information or to explain something, the speaker should find out if this has been done successfully, e.g. by allowing questions and discussion which will show whether the subject has been understood.

If the purpose is to seek the views of members, the chairman or secretary should summarizer the views expressed or put them in different words to obtain the agreement of those present about what ahs been said.

Quarrels and shouting at meetings do not help. They are often the result of poor communication. There are fewer disagreements when people understand each other clearly.

A GOOD MEETING IS SUCCESSFUL COMMUNICAITON

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TERMS OF REFERENCE FOR PROJECT EVALUATION

1. INTRODUCTION

This should include a brief description of the project origin and background. A summary of project objectives, outline of strategy, project budget and duration.

2. EVALUATION OBJECTIVES

The evaluation team is expected to achieve several sets of objectives, the assessment of the project's performance in relation to quantitative and qualitative indicators, an analysis of the project implementation process; an analysis of the project's impact; and formulate recommendations to develop further and sustain the project's strengths and to reduce its weaknesses.

a) Quantitative and Qualitative Information on the Project Performance

The analysis and assessment of the projects' performance should be carried out in the area of project planning, project achievements and management of project implementation.

i) Project Planning, including:

- Relevance of problems and needs which the project is addressing:
- Relevance of project objectives;
- Relevance of project strategy (project interventions);
- The project proposal document and project agreement;

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ii) Project Achievements; including

- Project objectives and targets met, training activities (in relation to the project proposal document and implementation plans) e.g.:
  - ❖ Development of project procurement monitoring system;
  - ❖ Development of project management information system;
  - ❖ Development of project financial monitoring system etc.
  - ❖ Project activities carried out (in relation to the project proposal and implementation plan)
  - ❖ Consumption resources (in relation to the project agreement and project financial reports)

iii) Impact On Target Population

The analysis and assessment of the project's impact on target population

iv) Management of project implementation; including

- Project organization; project monitoring/project progress reports
- Projects budget
- Liaison with donor

b) How effectively has project either directly indirectly addressed the goal in relation to existing policies and programs.

c) Recommendations

Either for the remainder of project period if it is a mid- term evaluation or termination of project or its continuation to another phase if it is end of project evaluation.

3. EVALUATION METHOD

The nature of the valuation should be both formative and participatory. An evaluation aims at shaping the future work of a project on the basis of its past performance and experience. It should also help to develop further its strengths and minimize its weaknesses.

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Participatory evaluation requires the involvement, participation and contribution by all the parties concerned; i.e. project beneficiaries, project staff, donor (if possible) and the implementing organization.

Other methods of collecting information in support of meeting the evaluation objectives are as follows:

- Review of project proposal, project agreement and project implementation plans;
- Review of project files;
- Review of project outputs e.g. workshop reports and workshop curriculum etc;
- Interview and/ or group discussion with project beneficiaries, projects staff etc.

4. EVALUATION PRODUCT

Main product- Evaluation Report covering the following;

- Review and assessment of project's performance in relation to quantitative and qualitative indicators in the area of project planning, project achievements and project management.
- Evaluation Recommendations.

5. EVALUATION TIMETABLE

This Timetable should include the assignment of responsibilities.

6. BUDGET

This should include all evaluation costs including consultancy fees, per diems, transport, etc.

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