MODULE 4

District Health Management Team
Training Modules

Planning and Implementation of District Health Services

AFR/DHS/03.04

Rufaro Chatora, Prosper Tumusiime

World Health Organization
Regional Office for Africa
Brazzaville

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Foreword

Health systems in Africa are undergoing considerable change, often in a context of ongoing health sector reforms. In most countries, decentralization of health services is very central to these changes, and consequently there is a need to prepare and empower those working at the district level for their new responsibilities and tasks. Many countries have requested WHO/AFRO to support them in the implementation of the change processes at the district level, and the Regional Office is giving special attention to these requests. Apart from the technical support that WHO can provide to the countries concerned, several support tools, modules and frameworks have been and are being developed to support the strengthening of district health systems.

The training modules are intended for use by district health management teams (DHMTs) with the objective of developing the capacity to address the problem areas identified from the assessment of district health systems operationality. In addition, the modules could also be used during basic training of health personnel. Tools for the assessment of district health systems operationality are already available to the countries.

Countries should make use of these training modules so as to enhance the effectiveness of the priority programmes they are implementing in order to improve the performance of their health systems. It is clear that the success of health systems largely depends on the performance of the health system at implementation levels, namely district and community. The training modules address practical issues critical for the improvement of health systems at those levels.

I hope that countries and especially district health management teams in the Region will make optimal use of the training modules in order to enhance their capacity to address the priority health problems that we are facing every day.

Dr Ebrahim Malick Samba
Regional Director

March 2003

Acknowledgements

This publication is an effort to respond to the different needs for capacity building in management and implementation of health programmes and delivery of essential services. It reflects the thinking acquired from experience working with health sector reforms being implemented in the African Region.

The District Health Management Training modules are meant to be used as generic materials which may need to be adapted to country-specific situations. They cover the principles that are applicable across the Region and are meant to guide and strengthen the management capacity of district health management teams.

We would like to express our sincere gratitude to all those who have contributed to the development and review of the previous versions of the modules. Dr Sam Nyaywa, working with colleagues in the Division of Health Systems and Services Development (WHO/AFRO), provided the first draft in 1997. Special thanks also go to the Institute of Primary Health Care in Iringa and the Centre for Education and Development in Health, Arusha (CEDHA), both in Tanzania, which participated in the testing and revision of the modules. We also would like to express our appreciation to the Zimbabwe team who reviewed the modules and the WHO Tanzania Country Office team for their support.

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List of Abbreviations

AFRO	WHO Regional Office for Africa
AIDS	Acquired immunodeficiency syndrome
ARI	Acute respiratory infection
AWP	Annual work plan
CBR	Crude birth rate
CDR	Crude death rate
CEDHA	Centre for Education and Development in Health, Arusha
DALYs	Disability adjusted life years
DHMTs	District Health Management Teams
DHP	District Health Plan
DMCHC	District Maternal and Child Health Committee
DMO	District Medical Officer
FP	Family planning
GBD	Global Burden of Disease
HIV	Human immunodeficiency virus
HMIS	Health Management Information System
HQ	Headquarters
HSR	Health Systems Research
IMR	Infant mortality rate
IPD	Inpatient Department
MCH	Maternal and Child Health
MMR	Maternal mortality rate
MoH	Ministry of Health
NGOs	Nongovernmental organizations
OPD	Outpatient Department
PHC	Primary health care
PHN	Public health nurse
PRA	Participatory Rural Appraisal
RHMT	Regional Health Management Team
STD	Sexually transmitted disease
TB	Tuberculosis
TBA	Traditional birth attendant
TV	Television
U5MR	Under-five mortality rate
VDC	Village Development Committee
WHO	World Health Organization

Overall Introduction To The Modules

This is one of a set of four management training modules aimed at District Health Management Teams in the countries of the African Region.

There have been considerable achievements in African countries as a result of implementation of the Primary Health Care (PHC) strategy. However, health problems and ill-health continue to exist despite these laudable initiatives; for example, inequity in health care delivery still exists. Health systems and programmes are often blamed for inefficiency and ineffectiveness, putting them under pressure to be re-orientated and re-organized.

The setbacks have been partly attributed to the continuing economic crisis and lack of resources. However, much has to do with poor management, especially in the organization of district health systems and the difficulties faced in translating PHC principles and Health Sector Reform proposals into practice.

These problems can be attributed to lack of appropriate knowledge, skills and capacities among those who are responsible for managing district health systems and programmes. The gap which exists between training of district health managers and what they are called upon to do, poses one of the major issues to be addressed for the achievement of health sector reform objectives as well as the goal of Health-for-All.

Training of DHMTs in health management has been going on for some time. Different institutions have developed training materials; however, these materials are usually not based on the current thinking of practical health management requirements in the recently or impending decentralized districts.

The ongoing health sector reforms in African countries focus on the district health system. New and heavy responsibilities are placed on the shoulders of the District Health Management Teams who are the main implementers of national health policies and strategies. The Division of Health Systems and Services Development of the World Health Organization Regional Office for Africa therefore developed this set of training modules that addresses the knowledge, skills and attitudes required of District Health Management Teams to cope with their challenging new roles and tasks.

It is acknowledged that circumstances differ widely among countries in the African Region. The modules are therefore meant to be generic and should be adapted to country-specific circumstances as required. It is further recognized that learner needs of different district health management teams in countries can differ from one another; even learning needs among members within a particular team can differ. The course that is offered is therefore explicitly modular: it is not necessary that everyone study every unit in every module at the same level of detail. Although the modules were developed for DHMTs, they are also potentially useful for district-based managers of health programmes and other "extended" DHMT members. Furthermore, countries with regional or provincial health teams can benefit from the modular course by acquiring a common understanding with the DHMTs. This would strengthen their support function capacity.

With this understanding, the main developmental objective of the modular course is:

To have in place DHMT members with adequate managerial skills and capacities for the implementation of Health Sector Reforms.

The district health management training modules have been developed to cover four major areas. Modules 1 though 3 should take a week each. At least two weeks should be set aside for module 4.

Module 1: Health Sector Reforms and District Health Systems

- Unit 1 Health Policy, Strategies and Reform
- Unit 2 District Health Systems

Module 2: Management, Leadership and Partnership for District Health

- Unit 1 Important Management and Leadership Concepts
- Unit 2 Team Work
- Unit 3 Multisectoral Collaboration: Partnership in Health Care
- Unit 4 Partnership Between Organizations
- Unit 5 Community Participation, Partnership Between Organizations and the Community

Module 3: Management of Health Resources

- Unit 1 Management of Human Resources
- Unit 2 Management of Finances and Accounts
- Unit 3 Management of Logistics
- Unit 4 Management of Physical Infrastructure
- Unit 5 Management of Drugs
- Unit 6 Management of Time and Space
- Unit 7 Management of Information

Module 4: Planning and Implementation of District Health Services

- Unit 1 Basic Concepts of District Health Planning
- Unit 2 Preparation for Planning
- Unit 3 Health Systems Research
- Unit 4 Steps in the Planning Process
- Unit 5 Essential Health Package
- Unit 6 Disaster Preparedness

Introduction To Module 4

The health sector reform policy recognizes that the district is the most important operational level for implementing the primary health care (PHC) strategy. Financial and managerial responsibilities will therefore be decentralized to the district level.

This new role poses a challenge to the district health managers, who are responsible for the planning and management of district health services.

One important new task for the district health managers is decentralized planning which allows a closer understanding of different needs and demands of communities. This in turn allows effective community participation and equity in the provision of health services. However, effective district health planning depends on a number of conditions such as planning skills; planning structure; planning processes; planning culture; and planning horizons at the district level.

Decentralization in planning should be integrated with decentralization of functions, resources and authority to the district. District health planning also requires effective health management information systems that are of fundamental importance in assessing district health needs; allocation of resources and monitoring of their use; monitoring of the utilization of services, their quality and coverage; and policy formulation and programme evaluation.

To develop such a system, the district must review its information base and develop skills and systems in the collection, analysis, presentation and use of such information. This can be achieved through appropriate training and supervision.

Planning is an integral part of operational district health management. It involves a number of processes such as situation analysis, programming, implementation, monitoring, evaluation and re-programming. This module aims at strengthening the capacities of DHMTs and other related bodies to plan, implement, monitor and evaluate programmes in their districts.

Upon completion of this module, the district health planning team members will be able to participate in district health planning and, as a team, produce a realistic district health plan.

The module is structured as follows:

1. Basic Concepts of District Health Planning
2. Preparation for Planning
3. Health Systems Research
4. Steps in the Planning Process
5. Essential Health Package
6. Disaster Preparedness

Unit 1: Basic Concepts of District Health Planning

Introduction

This unit introduces the DHMT members to the important task of district health planning. It gives an overview and introduces the basic concepts of planning.

Objectives

At the end of this unit, participants should be able to:

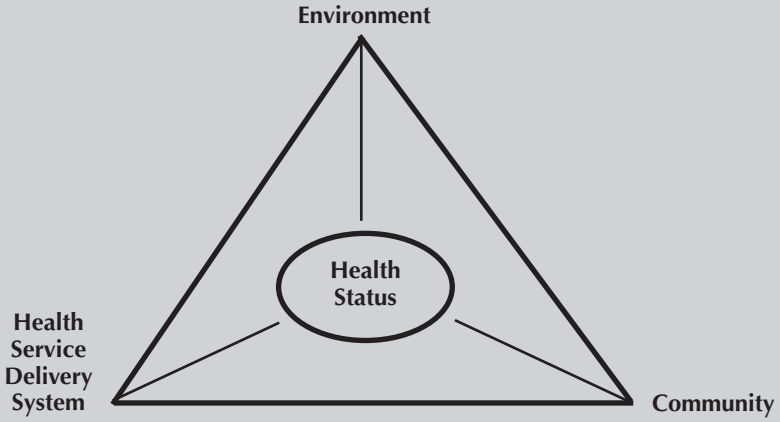
- Identify the main groups of determinants of the district health status.
- Define planning and district health planning.
- Relate district health planning to national policy and strategies.
- Distinguish between short- medium- and long-term planning.
- Outline the planning cycle.
- Identify participants in the district health planning team.
- Identify the main important issues to take into account during the planning process.

Basic premises of health planning

Health planning requires a background understanding of the functioning of the health system in a given country. In any health system, there are three important elements that are highly interdependent, namely: the community, the health service delivery system and the environment where the first two elements operate. Figure 1 illustrates the interdependence of these elements.

Determinants of health status

FIGURE 1: THREE MAIN DETERMINANTS OF DISTRICT HEALTH STATUS



Environment

This, for example, could be the context in which the health service delivery system operates. The contextual environment could be the political system, health-care policies and development policies. It could also include the socio-economic status or the physical environment, e.g. climatic conditions. All these elements have a bearing on the health status of the individual and the community, as well as the functioning of the health service delivery system.

Health service delivery system

This depicts how health facilities are distributed in the community, which could also have a bearing on coverage. Similarly, health services could be viewed in terms of their affordability and responsiveness to equity which contribute to the health status of the community (compare with Module 1, Unit 2, Section 2.6).

Community

The characteristics of the society, such as culture, gender, beliefs and health-seeking behaviour, together with the environment and health service delivery system, determine the health status.

1.1 Health Planning

ACTIVITY 1

Define the terms:

- Planning
- District health planning

- Planning is a systematic process of identifying and specifying desirable future goals and outlining appropriate courses of action and determining the resources required to achieve them.
- Health planning should aim at improving the health status of a given population while safeguarding equity and fairness of access as well as responsiveness of the health system to the perceived needs of the community. The health plan should achieve this goal through the provision of efficient and effective health services, taking into account available resources and the available means and methods of health care.

ACTIVITY 2

List reasons for planning. Are there any other reasons which necessitated planning at your district/work place? Discuss them in a group.

1.2 Reasons to Embark on District Health Planning

These include:

- Translation of a "new" health policy statement into a plan of action.
- Translation of a "master plan" such as a national plan into a district plan.
- Re-planning on the basis of an already existing plan, for the purpose of reviewing existing health problems and needs and rendering services which are more effective and efficient.
- Emergence of a new health problem, e.g. AIDS and Ebola, or re- emergence/resurgence of a known health problem, e.g. tuberculosis and malaria, which may require a special strategy or programme.
- Meeting the necessary standards and achieving the set objectives.
- Economizing on available resources.
- Ensuring coordinated effort and action.

ACTIVITY 3

Discuss, in groups, the difference and relationship between objective (real) health needs and subjective (felt) health needs, with reference to your district.

Planning horizons

Usually, district health plans are of one year duration. Such plans are called annual plans. Sometimes, the district may have plans which go beyond one year and cover 2-3 years. These are rolling plans and forward budgets, also known as medium-term plans. Another type of planning horizon is when a plan covers a period exceeding 3 years, say up to 5 years. This is called a **long-term plan.**

Who makes up a district health planning team?

Core members of the district health planning team might be:

- District planning officer and/or his technical representative.
- DHMT members.
- Community representative and users.
- Regional health management team (RHMT) representative.
- Representative from the rural health centre.

ACTIVITY 4

Think of the planning team at your district.

- Is membership similar to the example given above? If not why?
- Will it make a difference to have additional members as suggested above?
- Does your current district health planning take into consideration all the levels listed above? Discuss these questions in a group.

1.3 The Planning Cycle

The planning cycle is a sequence of steps which must be followed in deciding what is to be included in the plan. The cycle seeks to answer the following questions:

Where are we now?

This requires a situational analysis to identify current health and health-related needs and problems.

Where do we want to go?

This requires the selection of priorities and identification of objectives and targets to be met in order to improve the health situation and/or service delivery in a district.

How will we get there?

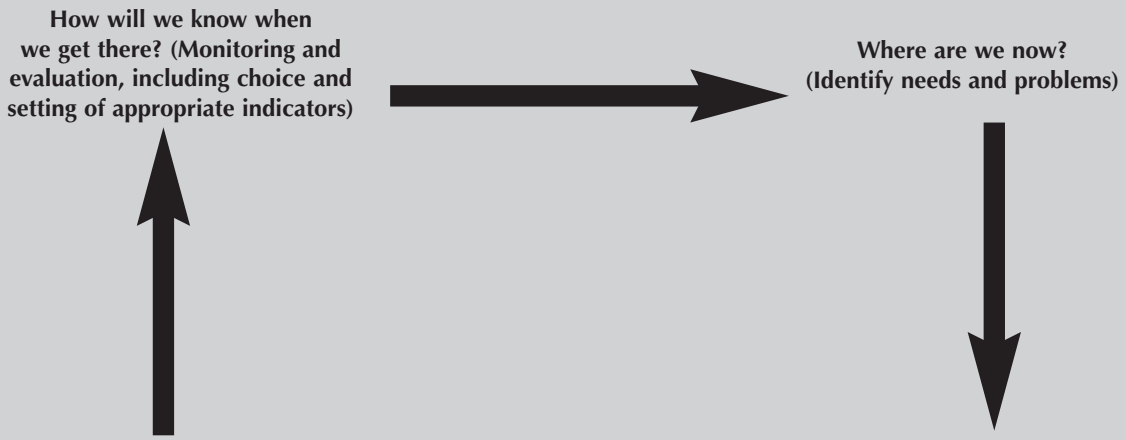
This details and organizes the tasks or interventions to be carried out, by whom, during what period, at what costs and using what resources in order to achieve set objectives and targets.

How will we know when we get there?

This requires the development of measurable indicators for monitoring progress and evaluating results.

The above questions form a planning cycle as represented in Figure 2.

FIGURE 2: THE PLANNING CYCLE



1.4 Important Issues to Keep in Mind During the Planning Process

Use of local (district) data

Evidence-based planning emphasizes the importance of using local data or information available in the district. The district health planning team is required to analyse and use existing data in the planning process, for example, data from the Health Management Information System (HMIS). Existing data may be limited and as such efforts should be made to seek additional data from:

Community information

Think of community-based information on health and health-related issues like deaths, maternal deaths, prevalence of malnutrition in the under-fives, etc. Various epidemiological methods and tools could be designed such as community surveys to gather more of such useful information for planning.

Local research information and data

Often there are studies conducted in the district, the results of which are rarely incorporated into a comprehensive district health plan. Research is carried out by different parties such as students, research institutions, health training institutions, PHC programmes, etc. Such important and useful information or data is available but lies idle and is not used. DHMTs have a duty to actively search for this kind of information and use it for planning.

Data should be used to feed into the continual monitoring and evaluation process. It should be utilized to address the issues of equity of service provision in the community in terms of:

- Geographical accessibility;
- Gender/social accessibility; Economic accessibility.

Essential services

Services that are likely to produce the greatest impact on the overall disease burden in the district should be included in the plan.

Delegation of planning and implementation

Managers and/or those in charge of district health facilities (dispensary, health centre, and hospital) should be key players in the planning process and will be responsible for implementing their health plans and budgets.

Community partnership

The various health committees should link up with communities to enable the latter to have mechanisms for participating in setting priorities. A variety of feedback mechanisms should be put in place to ensure that the health system as a whole is responsive to community, patient and client needs.

Cost-effectiveness

If there is more than one feasible way of achieving results, the least costly but most effective health intervention should be selected. Cost consideration should be part of the planning process.

It also means that health interventions should be implemented at the feasible lowest level of care system. For example, normal deliveries or treatment of uncomplicated cases of malaria are best managed at the health centre or dispensary than at the hospital where costs will be much higher.

Accountability

Accountability both in finances and performance should be emphasized. Each level of health care should have its own plan with clearly defined activities which are costed and which have quantifiable or measurable outcomes and output indicators. Such activities should try to address disease burden and epidemiological concerns.

Unit 2: Preparation for Planning

Introduction

Preparation for planning is the first step towards the development of the plan. Planning itself requires considerable time and resources. It should, therefore, be planned and budgeted for and funds made available. The planning team is expected to set aside adequate time for preparation, which may take two weeks as proven by some experiences.

Objectives

At the end of this unit, participants should be able to:

- Identify activities and responsibilities to be performed by the team members before the planning process commences and resources sought.
- Update the district health profile.

2.1 Preparatory Activities

The important preparatory activities to be considered are:

- Determining when planning has to be carried out.
- Identifying persons to perform this important work of planning.
- Determining the budgetary requirements for planning and comparing same with the available funds in the current annual work plan.
- Establishing a time frame for planning.
- Assigning specific tasks and responsibilities to each member of the planning team.
- Developing a methodology for evaluating the planning process and output (these are commonly known as indicators).
- Securing funds for the planning activity and arranging for logistics, e.g.
  — inform the team members of the planning session;
  — request permission from their supervisors;
  — arrange for transport; and
  — arrange for stationery and equipment, (computer or typewriter, overhead projectors, etc.).
- Collecting documents for review (include an updated district health profile).

2.2 District Health Profile

The district health profile provides information about the district in an organized manner and in one document and assists one to pick up and interpret important features of the district. Considering the importance of the district health profile in the planning and management of district health services, it should

be updated regularly, preferably on an annual basis, and before the planning session commences. The district health profile should include information and data on:

- Geographical features;
- Economic activities, including food production;
- Literacy rates;
- Demographic data (total population, women of child bearing age, children under one and under five, population growth rate, crude birth rate, crude death rate, infant mortality rate, under-five mortality rate, maternal mortality rate, etc.);
- Epidemiological data (top 10 causes of morbidity and mortality) for inpatients and outpatients;
- Health services provision and use (patient bed ratio, bed occupancy, etc.) ;
- Access to water and sanitation facilities;
- Health resource data (human, material, financial) including distribution and gaps;
- Physical health infrastructure, e.g. status of buildings;
- Major health status and health service problems by priority;
- Membership of district health board and facility committees;
- Communication facilities (transport, telephone, radio, roads);
- A district map with the necessary details, including divisions, wards, roads, health facilities, etc;
- Major key partners in health in the district, e.g. NGOs, private (for profit and non-profit) community;
- Medical equipment;
- Existing training institutions and training resources;
- Available/functional health committees;

The DHMT can obtain information and data for the preparation of the district health profile from a number of sources including:

- Health Management Information System (HMIS) and Health Statistics Abstracts or Records from the health facilities.
- Survey and research reports.
- Project and programme plans and reports.
- Vital statistics records.
- Census.
- District annual reports and financial reports.
- Community felt needs (these are either expressed by people or their leaders on their own feelings, needs and priorities).
- Your own experience as a health worker.
- An assessment of the operationality of your district health system as discussed in Module 1.
- Any other relevant and available source of information.

Note: The preparation of the planning process should take into consideration the planning cycle of the district council or any other administrative body at such level.

Unit 3: Health Systems Research

Introduction

The purpose of this unit is to introduce the basic concepts and uses of health systems research (HSR).

Objectives

At the end of this unit, participants should be able to:

- Define HSR, its objectives and characteristics.
- Define HSR, its objectives and characteristics.
- Describe the various uses of HSR at different situations.
- Identify, in their situation, where HSR is needed.
- Describe the general steps for undertaking HSR and how to promote the use of results.

3.1 Why did HSR Develop?

By adopting the philosophy of and strategies for Health for All, politicians and health staff at all levels are committed to ensuring that all people will attain a level of health that enables them to participate actively in the social and economic life of the community in which they live. Although research has made major contributions to health by providing knowledge on the causes of diseases and by developing the technology to cure and prevent disease and promote health, Health for All is far from being achieved.

Some of the basic questions on which health policy-makers need information are:

- What are the *health needs* of (different groups of) people?
- To what extent do *health interventions* cover these needs?
- Can we cover more needs, more people, in a more cost-effective way?

These questions cannot be answered without collecting more information through research. That is why, in the 1970s, **Health Systems Research** (HSR) was developed.

During the past two (or even three) decades, there has been a rapid evolution of concepts and research approaches to support managerial aspects of health development. Many of these have been described by specific terms such as operations/operational research, health services research, health management research, applied research and decision-linked research. Each of these has made crucial contributions to the development of HSR (WHO 1990).

HEALTH SYSTEMS RESEARCH is ultimately concerned with improving the health of people and communities, by enhancing the efficiency and effectiveness of the health system as an integral part of the overall process of socio-economic development, with full involvement of all partners.

Because HSR is **problem-oriented**, it should be selective and should concentrate on those factors that will help to explain and solve the problem being examined. It is very seldom that all components of the health system will be included in one study, although HSR studies rarely limit themselves to one component only.

Even within the narrower field of health services, HSR focuses on specific topics, depending on who experiences the problem and at what management level.

3.2 Examples of Possible Research Questions by Different Decision-makers

BOX 1: POSSIBLE RESEARCH QUESTIONS

Health policy-makers may, for example, want to know:

- How high (or low) should user fees be for specific health services in order to prevent a drop in utilization by those who \ need the services most?

Managers at district/provincial level may raise questions such as:

- Why is neonatal mortality in certain districts much higher than in other districts?

Hospital directors may ask:

- Why do we observe such a high rate of complications in deliveries? Are the first-line services sufficiently available and adequate? Are our own services adequate? Are mothers coming late for delivery and, if so, why?

Managers at village level (village health committees and village health workers) may want to know:

- Why are our village health posts under-utilized?
- How can we assist illiterate women so that they can effectively prevent and treat diarrhoea?

Community leaders may want to know:

- What will be the effects of a cost-recovery programme on the cost and availability of drugs?
- How much community labour will be required to manage the new water system?

The **major objective of HSR** is therefore to provide health managers at all levels, as well as community members, with the evidence- based information they need to make decisions on the health-related problems they are facing.

We must be aware that problems at one level of the health system are usually connected with problems or deficiencies at other levels. HSR should address problems from the different perspectives of all those who are, directly or indirectly, involved. Otherwise we run the risk of coming up with results which only partly explain the problem, and which are therefore insufficient to solve it.

3.3 Who Should be Involved in HSR?

It is evident that many issues in health are interrelated and interact with issues in other sectors, such as agriculture, education, water or roads, and broader environmental factors. Research in health systems must recognize this. The research skills that are needed may have to come from a variety of disciplines, e.g. public health/medicine, behavioural and social sciences, economics and agriculture. HSR is therefore **multi-disciplinary** in nature.

Researchers who work in HSR must do so in a **trans-disciplinary** way, which means working together as a **team** throughout all the phases of the research. In the process, they need to acquire a basic understanding of the concepts and approaches as well as the potential and limitations of research techniques used in sister disciplines.

HSR, however, is not the concern of scientists alone

One of the major characteristics **of health systems research is its participatory nature.** To ensure that the research is relevant and appropriate, everyone directly concerned with a particular health or health-care problem should be involved in the research project(s) focused on that problem. This could include policy-makers, managers from the health and other public services involved, health-care providers and the community itself. This involvement is critical if the research activities are to make a difference:

- If decision-makers are only involved after completion of the study, the report may just be shelved.
- If staff of health and other public services are only involved in data collection and not in the development of the proposal or in data analysis, they may not be motivated to collect accurate data or implement the recommendations.
- If the community is only requested to respond to a questionnaire, the recommendations from the study may not be acceptable.
- If professional researchers are not involved in the implementation of recommendations, they may have little concern for the feasibility of the recommendations.

The roles that various types of participants will play in the research project will depend on the level and complexity of the particular study, as well as its area of focus. Some projects are very complex and may need expertise from several levels, sectors and disciplines. Others may focus on simpler problems and thus require a more modest set-up.

3.4 Guidelines for HSR

Because HSR is undertaken primarily to provide information to support decision-making that can improve the functioning of the health system, we summarize here some essential guidelines for success:

- HSR should focus on **priority problems** in health care.
- It should be **action-oriented,** that is aimed at developing solutions.
- HRS calls for an integrated **multi-disciplinary** approach, that is research approaches from many disciplines are needed since health is affected by the broader context of socio-economic development.
- The research should be **participatory** in nature, involving all parties concerned (from policy-makers to community members) in all stages of the project.
- Studies should be scheduled in such a way that results will be available when needed for key decisions; research must be **timely.** Otherwise, it loses its purpose.
- Emphasis should be placed on comparatively **simple, short-term research designs, which** are likely to yield practical results relatively quickly.
- The principle of **cost-effectiveness** is important in the selection of research projects. Programme management and operational research should focus, to a large extent, on low-cost studies that can be undertaken by management and service personnel in the course of daily activities. (There is a need for some extensive studies as well, which may require outside funding.)
- Results should be presented in **formats that are most useful for managers, decision-makers and the community.** Each HRS report should include:
  - A clear presentation of results with a summary of the major findings adapted to the interests of the party being targeted by the research.
  - Honest discussion of practical or methodological problems that could have affected the findings.
  - Alternative courses of action that could follow from the results and the advantages and drawbacks of each, formulated with inputs from all parties concerned.

Evaluation of the research undertaken should in the first place concentrate on its ability to influence policy, improve services and ultimately lead to better health, and not on the number of papers published.

Thus, HSR should not stop at finding answers to the questions posed, but it should ***also*** assess the decisions and activities undertaken based on the research findings.

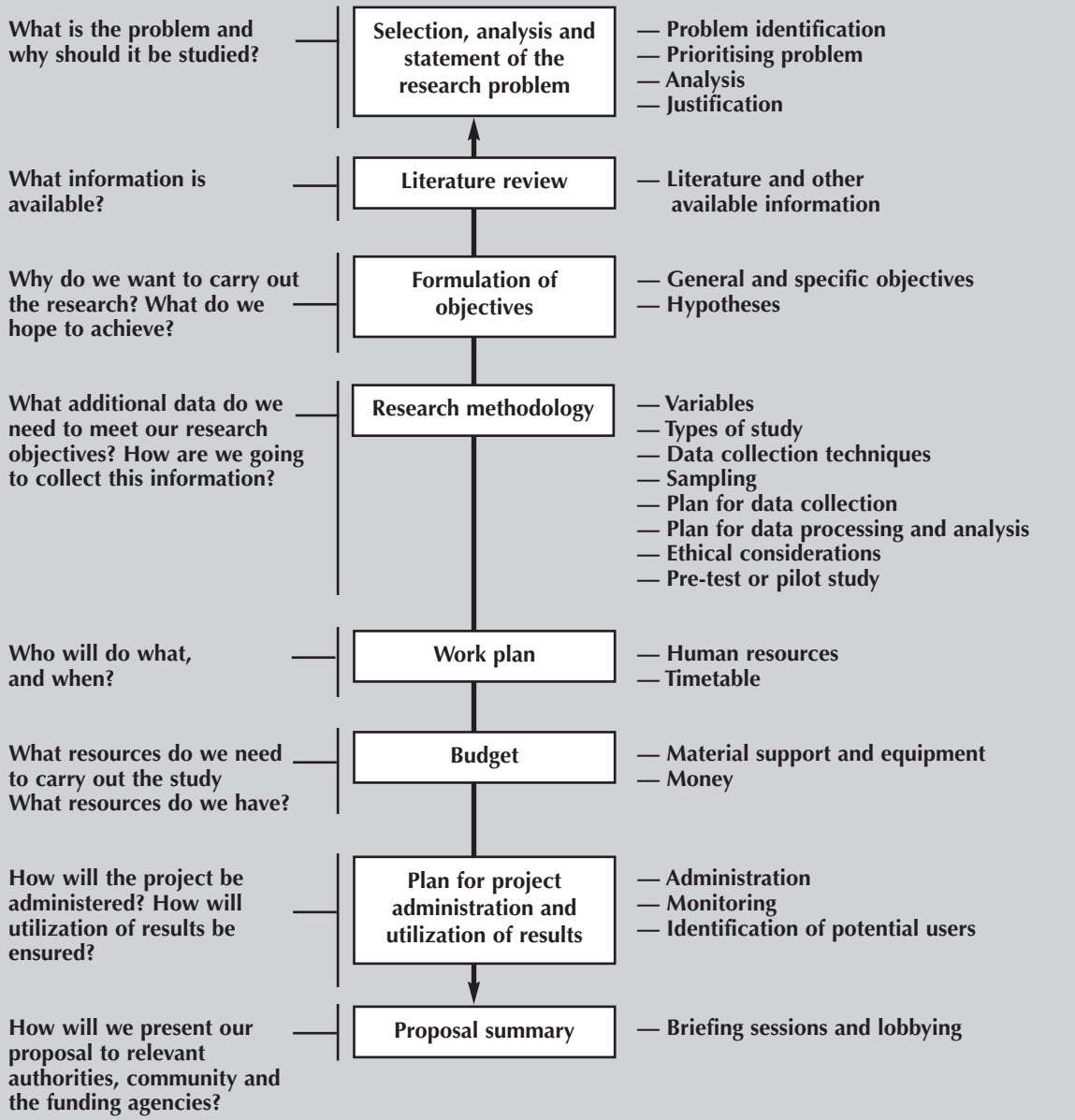
BOX 2: MAIN COMPONENTS OF HSR PROPOSAL AND HSR REPORT

MAIN COMPONENTS OF AN HSR PROPOSAL	MAIN COMPONENTS OF AN HSR REPORT
Title/cover page **Executive summary** **1. Introduction** 1.1 Background information 1.2 Statement of the problem 1.3 Literature review **2. Objectives** **3. Methodology** 3.1 Study type, variables, data collection techniques 3.2 Sampling 3.3 Plan for data collection 3.4 Plan for data processing and analysis 3.5 Ethical considerations 3.6 Pre-test **4. Work plan** **5. Budget** **6. Plan for administration, monitoring, and utilization of results** **7. Annexes** References List of abbreviations (if applicable) Data collection instruments	**Title/ cover page** **Summary of findings and recommendations** Acknowledgements (optional) Table of contents List of tables and figures List of abbreviations (if applicable) **1. Introduction** **2. Objectives** **3. Methodology** 3.1 Study type, variables, data collection techniques 3.2 Sampling 3.3 Plan for data collection 3.4 Plan for data processing and analysis 3.5 Ethical considerations 3.6 Pre-test **4. Findings and conclusions** **5. Discussion** **6. Recommendations** **7. Plan for use of results and recommendations** **8. References** **9. Annexes** Data collection tools Tables

Figures 3 and 4 illustrate the steps to be carried out in the development of a proposal for HSR and for data analysis and report writing, respectively. More detailed information can be obtained from the HSR Training Module, Volume 2.

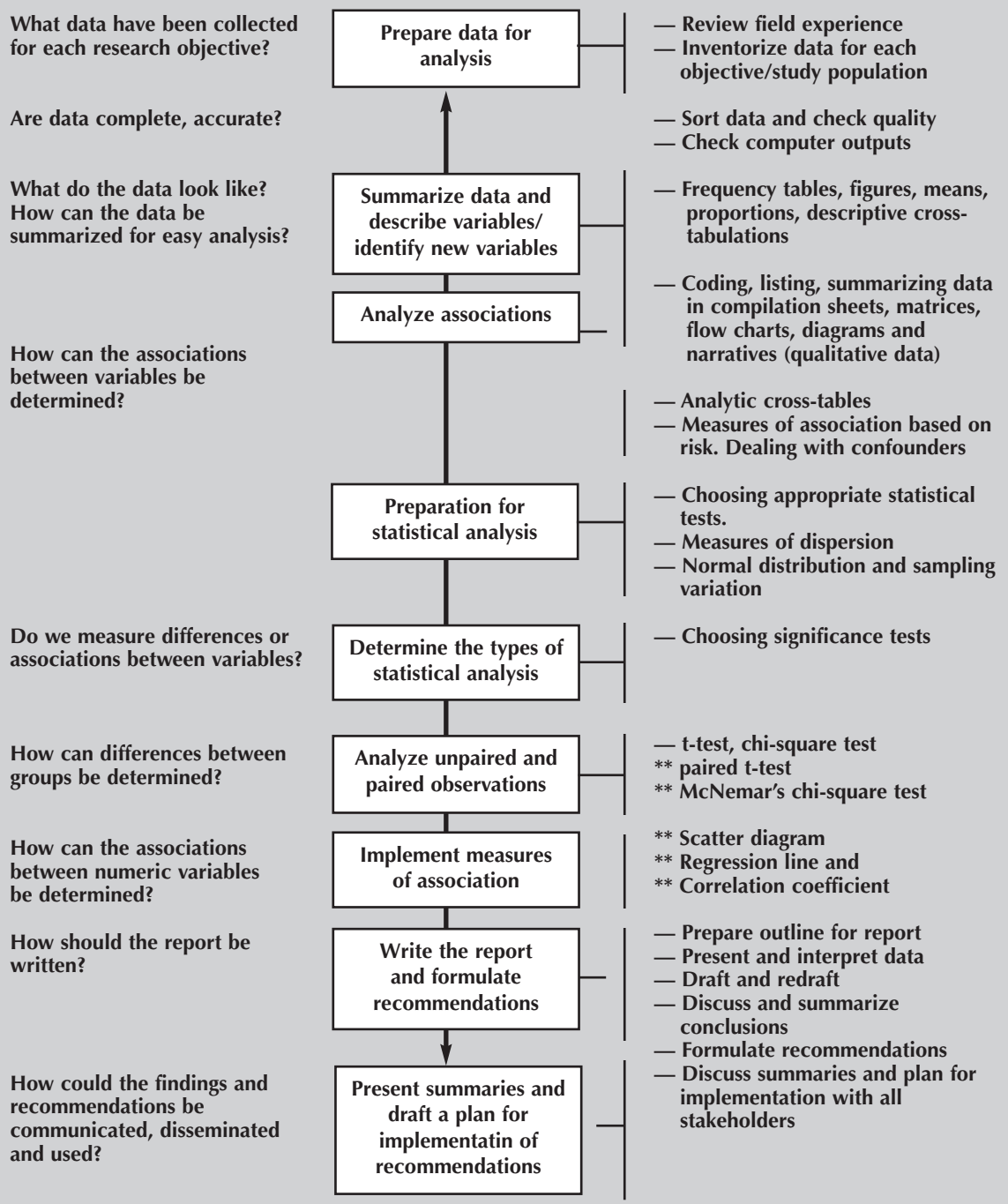
3.5 Health Systems Research Process: Designing and Conducting HSR Projects

FIGURE 3: STEPS IN THE DEVELOPMENT OF A HEALTH SYSTEMS RESEARCH PROPOSAL



Source: Designing and Conducting Health Systems Research Projects: Proposal Development and Field Work. Health Systems Research Training Series, Volume 2, Part I (IDRC_287 e.1), 1993.

FIGURE 4: STEPS IN DATA ANALYSIS AND REPORT WRITING



Source: Adapted from Designing and Conducting Health Systems Research Projects: Data Analysis and Report Writing. Health Systems Research Training Series, Volume 2, Part II (IDRC_287 e.2), 1993.

It should be stressed that designing a research proposal is not a linear but a cyclical process. Throughout the course there will therefore be opportunities to review and, when the need arises, to revise parts of the proposal that have already been drafted. When developing the research methodology, for example, the teams may find that the objectives and even the statement of the problem need to be revised in order to make them more specific. When finalizing the work plan and budget, the teams may determine that the research design, for financial reasons, needs to be revised to render the project more modest and thus less costly.

3.6 Use of Research Findings for Decision-making

Research findings mean very little unless they are effectively disseminated, communicated and used. The purpose of HSR is to provide useful information to managers at all levels that will facilitate problem solving. There is a need to promote and increase the utilization of research results among all potential users.

3.6.1 Strategy for dissemination and communication of research results

The use of results will increase if the following steps are taken:

(a) Develop and use a systematic dissemination and communication strategy for reaching different potential users.
(b) Identify and present research results to all stakeholders and obtain feedback on findings and recommendations.
(c) Develop a plan of action to promote the implementation of recommendations resulting from your study.
(d) Actively lobby and mobilize action for and support the use of results.

3.6.2 Communication channels

The report of the findings and recommendations and also action needed from the particular group and individuals need to be disseminated and shared. The following are some of the channels for communicating results and recommendations:

(a) **Media:** radio, newspapers, posters, TV.
(b) **Meetings:** with technical and management groups, DMHT, VDC, NGOs.
(c) **Community meetings:** village members.
(d) **Reports:** reports written for different audiences - main report, summary report, media report, public meeting report.
(e) **Workshops:** with different target groups.
(f) **Individual/personal briefings:** DMO, Chief, Member of Parliament.

3.6.3 Target groups

You have to distinguish who forms the target group, whose participation is required for action, who would be the responsible institution for implementation, who are the possible technical supporters, who should give their political blessing, who can support with finances and who will carry out the day-to-day activities. All of these groups and individuals will have to be informed of the results of the study. They should be able to react to your findings and recommendations and commit themselves to supporting and/or implementing the recommendations.

BOX 3: EXAMPLE OF KABWE DISTRICT RESEARCH TEAM

Kabwe District Research Team: Factors leading to poor sanitation in Kabwe District.

The team consisted of some DHMT members such as the DMO and the district public health nurse and public health inspector or environmental health officer. They distinguished the following institutions/groups for feedback:

Responsible institution:	DHMT
Target group:	Village leaders, Village health committee and heads of households
Technical support:	MoH, Water and Sanitation Programme, NGOs
Political support:	District Medical Officer (to support the implementation)
Financial support:	DHMT (resource mobilization) and NGOs, donors
Day-to-day implementation:	Health assistants (to provide assistance in the technical implementation)
Media:	Wider distribution of results and recommendations
Researchers:	

Source: Summaries of Health Systems Research Studies 1987-1993: Joint HSR Project, Harare, Zimbabwe (completed 1994)

3.6.4 Barriers to the use of results and recommendations

There is a need to identify possible barriers to the proposed action of implementing recommendations. Sometimes there are groups and individuals who are less interested or opposed to an identified activity. These groups and individuals need special attention in the feedback process.

BOX 4: EXAMPLE OF USE OF RESEARCH RESULTS

Objective of the study: To identify factors leading to high incidence of gonorrhoea in order to determine appropriate methods of control.

Brief findings: The most important risk factor for contracting gonorrhoea was having more than one sex partner over the previous 12 months. Single males run a higher risk of contracting gonorrhoea than married men, as having multiple partners was most common among single men.

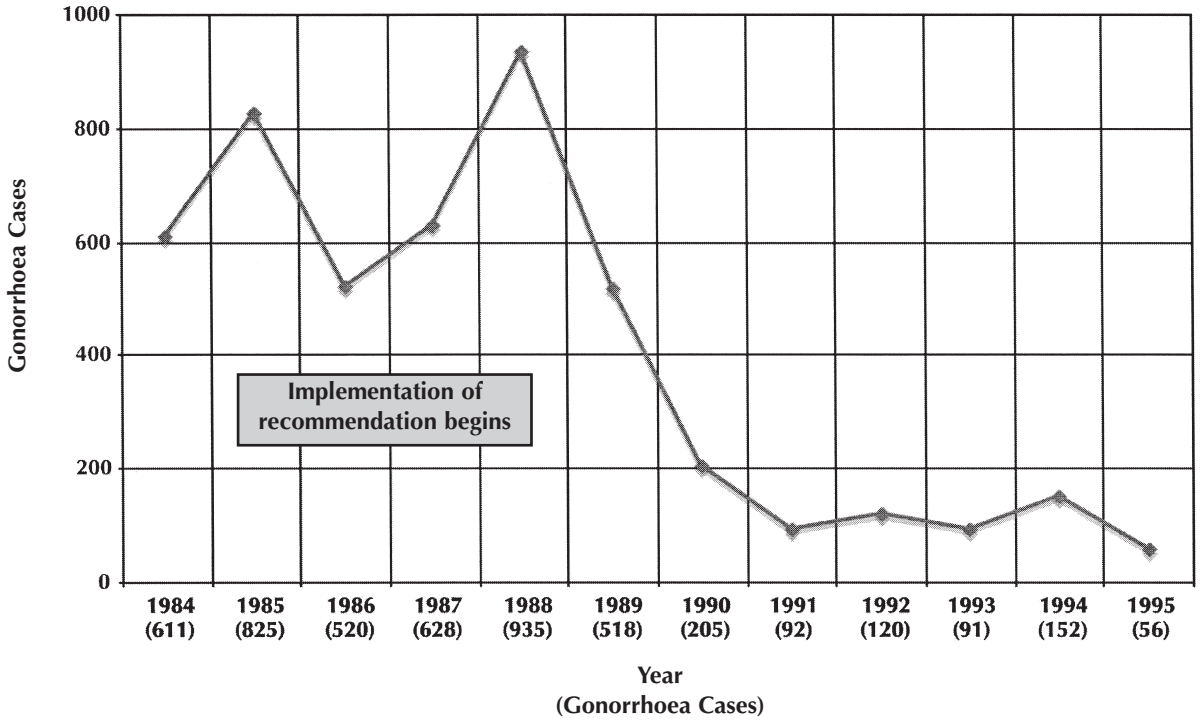
Major recommendations: MoH should organize health education for adolescents, young adults, school children and general public, emphasizing the following messages: regular use of condoms, limit the number of sex partners and importance of treating contacts.

Review of status of gonorrhoea in Seychelles, 8 years after the implementation of the recommendations. As the graph below shows, the incidence has dropped from a peak of 935 cases in 1988 to 56 cases in 1995.

3.7 HSR Training: HSR Proposal Development and Data Analysis Course

There is a standard course on HSR methodology. The HSR methodology is supported by a series of HSR training modules (see Box 5), which were developed and tested as part of the WHO/Government of The Netherlands/HSR Project, which was implemented in the Region since 1987, initially involving five Southern African countries. WHO/HQ, the Dutch Ministry of Cooperation and the Royal Tropical Institute, Amsterdam, supported this project. The project was managed by WHO/AFRO since 1996 and became a regional programme since 1998, covering all countries of the Region. Countries in the Region have established a Health Systems Research Unit and designated a focal point. These units are responsible for organizing training on HSR methodology in countries.

HSR Can Make A Difference - From Research To Action



BOX 5: HSR TRAINING SERIES

Volume 1:	Promoting Health Systems Research as a Management Tool
Volume 2:	Designing and Conducting Health Systems Research Projects Part 1: Proposal Development and Fieldwork Part 2: Data Analysis and Report Writing
Volume 3:	Strategies for Involving Universities and Research Institutions in Health Systems Research
Volume 4:	Managing Health Systems Research
Volume 5:	Training of Trainers for Health Systems Research.

ACTIVITY 5

- Identify HSR studies that have been carried out in your district, including those where you have been involved.
- Were recommendations implemented? IF NOT, what were the reasons for non-implementation? What concrete steps would you propose to improve the application of research results?
- Identify possible areas where research is needed in your district. For two of these areas, what relevant data is already available in your district?
- IF you have been involved in carrying out HSR, what steps in the HSR protocol development and data analysis did you actively participate in?
- What additional skills in HSR would you require?

Unit 4: Steps in the Planning Process

Introduction

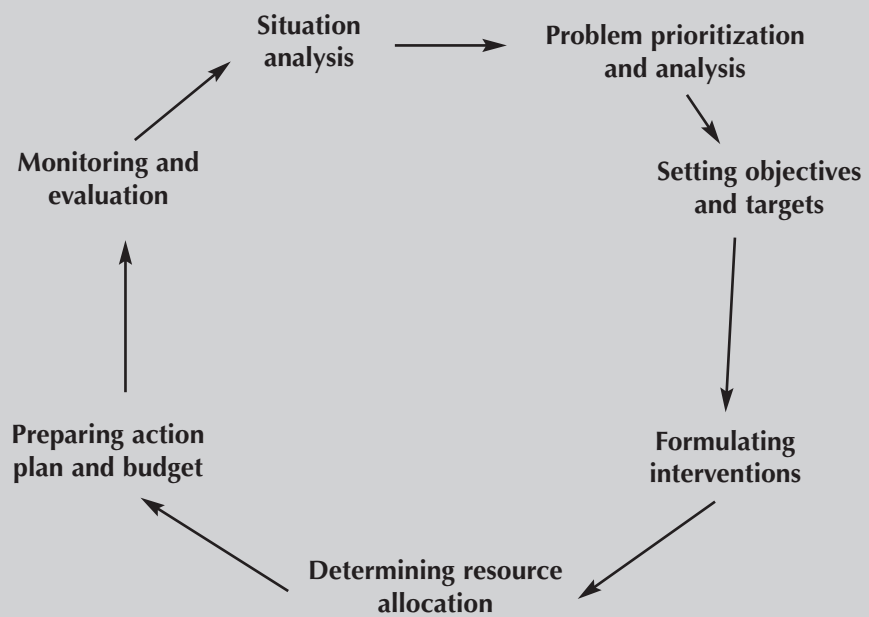
There are several steps in the planning process, which form a continuous cycle. This unit will guide you through each of the steps in this cycle.

Objectives

At the end of this unit, participants should be able to:

- Perform a situation analysis based on the district health profile, policies and review of previous plans.
- Identify and analyse district health and health service problems.
- Apply a systematic approach toward prioritization of identified problems.
- Develop plan objectives and service targets.
- Determine resource requirements.
- Prepare action plans and budgets.
- Devise monitoring and evaluation tools.

FIGURE 5: THE PLANNING STEPS



ACTIVITY 6

Now reflect on the way planning is carried out in your district.

- Are all these steps being observed? If yes, do you think they are sufficient?
- If you do not follow these steps, how else do you go about planning?
- Do you think you may improve your planning process by applying these steps?

Then ask yourself. Are these steps necessary? What if I skip any of them? Will I still be able to achieve my objectives?

4.1 Situation Analysis and Problem Identification

Situation analysis

This step involves assessment of the current situation from various perspectives to establish the actual health situation in terms of needs and priorities. Generally, situation analysis may answer the key question 'where are we now?' (Identification of needs and problems), and leads to the next key question 'where do we want to go'? (Setting priorities and targets). Refer to the planning cycle in Figure 2.

Review of previous plan(s)

A critical analysis of the previous plan (or plans) is an essential early step in the planning process:

- Has government policy over the period changed and what is its impact on the plan?
- Review the previous plan to see whether there are any changes in such information as population, health delivery, community participation and other social, economic and cultural factors.
- Recognize change in resource availability, e.g. human labour, money and materials and their allocation at the national and community levels.
- Analyse management support as a requirement for the new demands.
- Review the performance of the previous plan.

Review and interpretation of policy documents

It is essential to review the existing policy guidelines in order to familiarize yourself with the existing directives and regulations to be followed in the course of preparing a district health plan. The purpose of review is to ensure that national policy guidelines are being adhered to and that community decisions are being interpreted and translated into appropriate actions.

Steps to be followed:

- Review national health policy guidelines that govern the development and implementation of the plan in terms of health packages to be provided, means of implementing these packages and what problems and constraints, rules and regulations have to be followed.

ACTIVITY 7

Now go through your previous annual plan and answer the following questions:

- Is it still relevant as a basis for this year's annual work plan (AWP)?
- Is the situation analysis sufficient to be brought forward to this new plan? If no, note down the changes you would like to make.
- Is the health system appropriate to deliver the health services? If not what adjustments are required?
- Is there any change in resources? Is there a possibility of realizing more resources for the district? Consider the community resource base, government revenue, donor agencies, cost-sharing, etc.
- Is there any significant policy change that will affect your AWP? Will the policy revolving fund for hospitals affect your activities this year?
- What did you achieve last year that is significant?
- What percentage (%) of the planned activities were achieved in your previous plan?
- What did you not achieve that is of importance and priority to this year's AWP?

- Review resources available for implementing the plan in terms of human and financial resources, equipment, infrastructure and supportive services in the district.
- Review health sector reform, human resources for health development policy, PHC strategy, guidelines for the preparation of the rolling plan and forward budget and programme guidelines.
- Find out about the additional resources required within the community that may be incorporated.
- Determine both constraints and advantages that may be inherent in the overall socio-cultural environment in which the plan is being developed.

Problem identification

During problem identification consideration should be given to health and health-related problems based on available data from: HMIS, community surveys, census, reports and your own experience. (Refer to the district health profile). Health problems can either be primary or secondary.

Primary problems

These include illnesses identified in the community such as malaria, tuberculosis, AIDS, and leprosy, as well as existing inequity, unfairness and client dissatisfaction.

Secondary problems (also called contributory problems)

These can be inadequate health resources, inefficient health delivery services or poor management skills, which cause or contribute to the primary problems.

4.2 Problem Analysis and Prioritization

4.2.1 Problem analysis (problem and needs tree)

It is important for the DHMT to analyse identified problems in the context of prevailing conditions in their respective districts, using both problem and needs trees.

Problem analysis is the art of critical examination of problems against prevailing conditions of your respective districts. The analysis is done by constructing a problem tree.

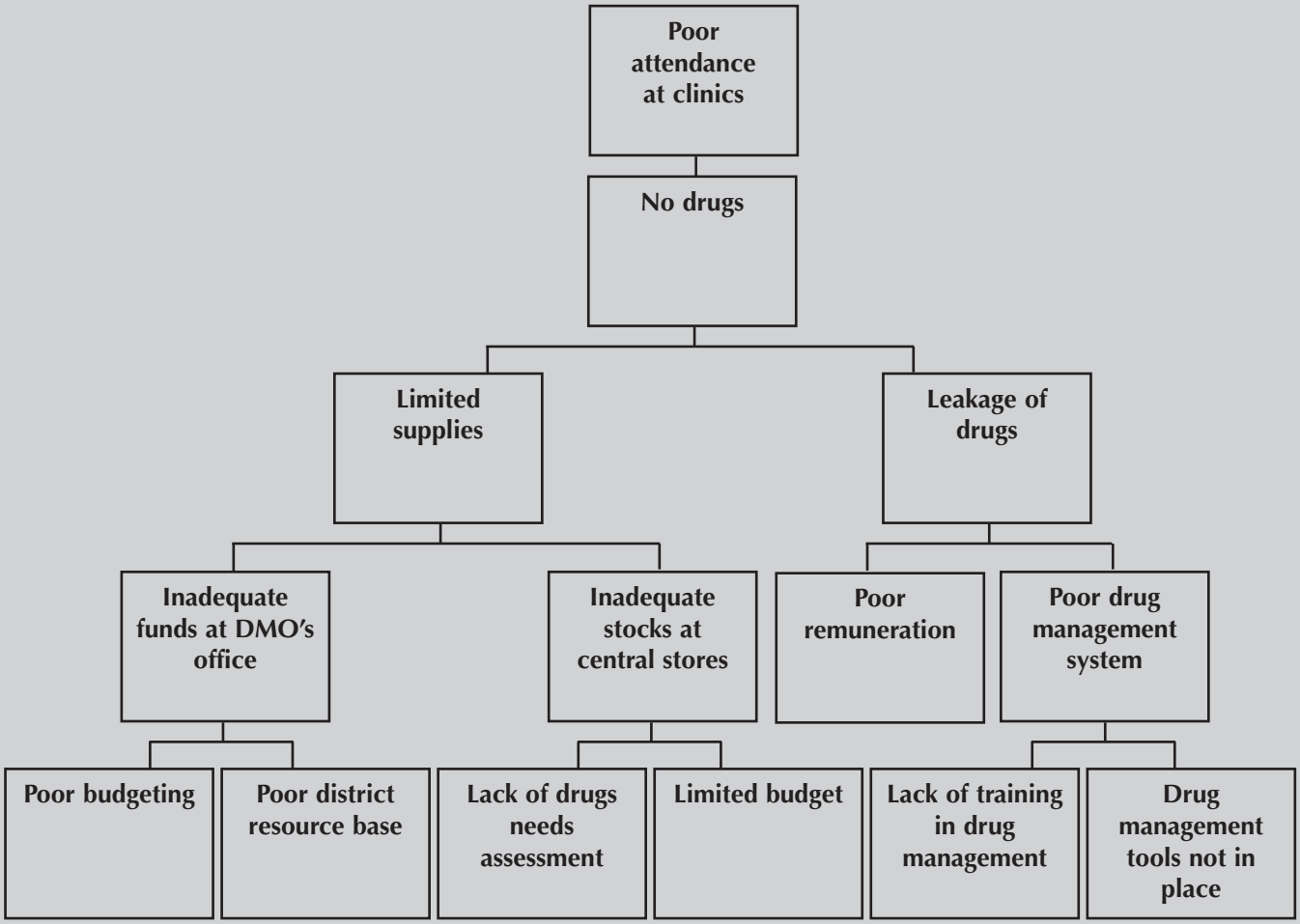
A **problem tree** is a set of assumptions on causes associated with the problem and its consequences (see an example in Figure 6).

ACTIVITY 8

Steps in problem tree construction:

- Start by writing the problem statement on a large single sheet of paper that is pinned to the wall. Each member of the group will be given cards and pens.
- The facilitators will ask you to write down what you think are the main causes of the stated priority health problem. Write only one cause on each card and in as few words as possible.
- For each cause, continue to ask yourself the question "BUT WHY?" and write down one answer per card.
- The facilitators will then arrange the cards under the problem statement on the wall, thus creating a problem tree.
- As you analyse problems and look at their causes you may realize that you wish to formulate the problem in a different way. For example, what appeared as a problem of lack of supplies for your immunization programme may, when you analyse it, turn out to be a problem of health planning or communication.
- After describing the immediate and associated causes of a problem you then describe the possible consequences of not addressing the problem. These are put above the problem and this completes the problem tree. You will realize that all the causes and consequences are described negatively.
- The last step is to review the problem tree you have just constructed. Going through each of the causes you have identified, ask yourself " Is this something we can change in the district?" We would like to focus on what is within the power of the district to improve, even if only in a small way.

FIGURE 6: EXAMPLE OF A PROBLEM TREE



4.2.2 Problem prioritisation

In planning, one has to make choices among needs so that scarce resources can be used efficiently. As a district, one practical approach is to rank the problems in order of importance. When doing this exercise, it should be remembered to take into consideration the national priorities as reflected in the national health policy guidelines. (For instance, HIV/AIDS and malaria control and polio eradication).

Once the major problems have been identified, their causes should be analysed by asking and finding out why they exist. This is sometimes obvious, but in some cases it is necessary to carry out wide consultation or even research.

Prioritization is making decisions on how limited resources could be best allocated to priority health problems or needs. It uses a combination of different approaches and criteria.

Health priorities, whether national or district, are arrived at by using explicit criteria such as outlined below.

Criteria for ranking health problems:

- **Magnitude:** In terms of the proportion of the population affected such as women, pre-school children, school children, the elderly, etc. This basically describes how big is the problem.
- **Severity/danger:** To the individual and the community. How serious is the condition. Does it threaten life, cause major suffering, decrease the ability to lead a normal life, reduce productivity?
- **Vulnerability to intervention (feasibility):** If a problem is not vulnerable to intervention, it makes little sense to include it in the list of those targeted for action.
- **Cost-effectiveness of the intervention:** expressed in terms of cost-effectiveness. These criteria should answer the question whether the problem, if addressed, is worth the financial cost involved.
- **Political expediency:** Even if a problem fulfils all of the above criteria, if it is not recognized as politically expedient by the central authority (See above: "Review and interpretation of policy documents"), it is very difficult to include it among the high priority list. This is why it is important to have an evidence base for such prioritization in order to convince the local politicians.

It is essential to include needs expressed by the community in plans as they ensure community ownership of the interventions which leads to sustainability of activities.

4.3 Setting Objectives and Targets

This stage in the planning cycle involves the determination of the goal, objectives and targets. This stage answers the key question 'where do we want to go'? Or 'what do we want to achieve? It is expected that the district health management teams will now have a clear picture of the district health situation (from the situational analysis), from which the priorities and objectives will be derived.

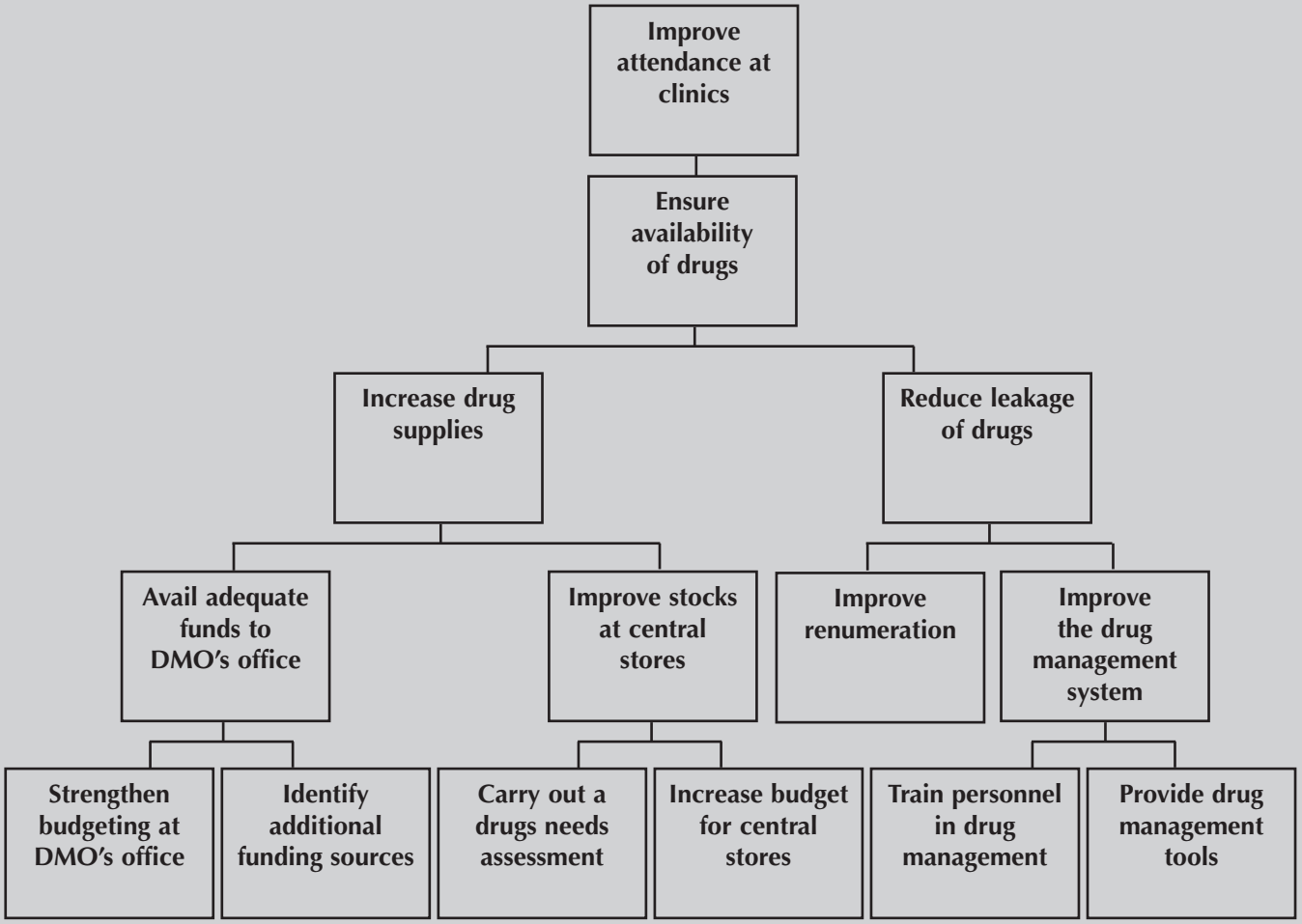
An objective is the intended result of a successful activity or programme within given inputs and process. Objectives will be formulated to address the identified priority problems and their immediate causes. Objectives should be specific, measurable (or at least observable), attainable (given resources, environment and management capacity), realistic and time-bound **(SMART).**

Objectives tree

Converting the problems of a problem tree into positive statements facilitates the development of objectives. For instance, if one of the problems in a problem tree is stated as:

- "Delayed referral of obstetric emergencies", an objective could read:
- "To have, within the next planning period, the number of delayed referral of obstetric emergencies reduced by 40%" (it will be necessary to define clearly what to consider a delay and what to consider an obstetric emergency).
- All the converted problem statements will now form an objectives tree as depicted in Figure 7.

FIGURE 7: EXAMPLE OF A OBJECTIVES TREE



Types of objectives

Objectives can be stated in terms of what can be achieved within a relatively short period of time, that is short-term objectives which ultimately lead to the achievement of long-term objectives.

Examples of short-term objectives:

- To advise and refer to antenatal care 70% of pregnant women in 10 villages in one year.
- To train TBAs in 10 villages in one year.

Example of long-term objective:

- To reduce maternal mortality from the current 300/100,000 to 250/100,000 live births in a three year period.

Setting targets

After setting objectives, you have to determine the number and quality of specific activities that have to be carried out before objectives can be realized, that is setting the targets.

Setting targets helps to determine whether the set objectives are realistic. If planned targets are higher than the potential numbers of services that can be delivered, given available or potential resources and under prevailing constraints, objectives should be modified to allow consistency between planned service targets and potential performance level.

Example:

In a given district there are 2000 pregnant women. If our service objective is to reach 40% of the women with an average of three antenatal visits each, then *we need* a minimum 2,400 service contacts to be provided in one health facility (40% of 2,000 = 800, then 800 x 3 = 2,400 contacts).

If there are four antenatal sessions per week, (in a year there are 52 weeks), and if the staff can attend 20 contacts per session, then 4,160 contacts per year can be accommodated (i.e. 4x52x20 = 4,160, which is more than the planned service targets of 2,400). This implies that if the objective could be set at 60% of the women, that is 3,600 contacts, the available staff could still handle them without additional resources.

Table 1 provides an illustrative example of an intervention matrix showing targets and objectives.

ACTIVITY 9

Formulate short- and long-term objectives from the problem/need trees you have developed. Determine realistic objectives and targets from the problem tree.

4.4 Formulating (developing) Interventions

Developing interventions is the process of identifying, short-listing and deciding between alternative approaches and measures to address identified and prioritized health problems and needs. At this stage the key question to be addressed is "how will we get there?"

Formulation of interventions is carried out in conjunction with the next stage in the planning circle, which is determining resource requirements and subsequently preparing the plan of action. Interventions are alternative measures to address priority health needs.

TABLE 1: EXAMPLE OF AN INTERVENTION MATRIX WITH OBJECTIVES AND TARGETS

Aim	Programme intervention	Short-term objectives	Planned targets	Activities
Improved obstetric care in all villages	Community-based obstetric care and referral to health facilities	All pregnant women in the villages to be advised and referred to the clinic	Have at least one nurse per facility with TBA training skills upgraded	Send one nurse for 2 weeks course in TBA training and supervision
		80% of women to deliver in the villages assisted by trained TBAs	Increase No. of trained TBAs to 50. Each TBA to have a delivery kit by end of year	Hold 14 TBAs-training days (provide equipment & practice on how to use them)
			1600 pregnant women to be delivered by trained TBAs	Carry out 75 TBA-supervision visits (3 per village per year)
Increased compliance	Health education & Community mobilization	60% of pregnant mothers to attend Antenatal Care Clinic, at least 3 times during the same pregnancy in the dispensaries	At least 1200 women attend 3 or more antenatal visits	4000 antenatal services to be offered in the clinics or at home
			Have 8 religious leaders co-opted to advocate use of Antenatal Care Clinic	3 contacts with each of the 8 religious leaders, i.e. 24 contacts made
			Have pre-tested education materials in Antenatal Care Clinic in 30% of villages	2 health education campaigns per village (10 villages) including providing/posting education materials

The following steps are needed in developing interventions:

- Identifying and short-listing gaps and weaknesses in existing service components by looking into:
  - — appropriate service inputs such as service delivery infrastructure, resources and support systems;
  - — management and organization focusing on resource control, activity monitoring, quality control, health service distribution, community involvement and participation.

- Identifying additional components and activities that are required to bring about the desired changes in the existing service components.
- Identifying potential constraints and limitations to planned interventions.
- Modifying proposed interventions in line with geographical, political, climatic and socio-cultural conditions, including existing infrastructure, management and organization. Consider the following criteria for modifying the interventions:
  — any intervention or option which has very strong political support, should be included;
  — any intervention that has a binding constraint that would make it unfeasible should be dropped;
- Addressing constraints by using community resources, modifying job responsibilities and tasks, shifting available resources from one activity to another and obtaining additional resources;
- Improving management and administration in line with identified interventions.

ACTIVITY 10

- Shortlist identified and prioritized health problems and needs in your working area.
- Prepare appropriate interventions to the priority problems and needs.
- What are the limitations/deficiencies/constraints to some of the interventions?

Note: Present your answers in a table form.

4.5 Determining Resource Requirements

Determining resource requirements involves translation of interventions and all activities required to support the interventions into resources such as human labour, materials, money, space, time and information.

How to determine resource needs

Establish a resource inventory table. The table should specify existing resources, additional resources required and total resources needed. To do this, list all programme activities, and the type and quantities of resources required by each programme activity.

Example:

Determine resources required to immunize 10,000 women between 15 and 45 years of age with two injections each of tetanus toxoid within one year.

The interventions will include:

- training;
- immunization;
- health education;
- supervision.

The activities carried out in each intervention are stipulated in Table 2.

The required inputs are:

- personnel;
- physical infrastructure;
- equipment and materials;
- drugs and supplies;
- travel/transport costs/funds.

The resource requirements for an immunization programme are shown in Table 2 below.

TABLE 2: EXAMPLE RESOURCE REQUIREMENTS FOR A PROGRAMME FOR IMMUNIZATION OF WOMEN AGAINST NEONATAL TETANUS

Intervention	Personnel	Physical infrastructure	Equipment/ materials	Drugs and supplies	Travel/ transport	Funds
Training	6 PHNs, 2 Doctors	Training centre x 5 days accommodation	White board, 10 disposable syringes, needles	Vaccine: 5 vials	5 days of minibus	$ 350 (for meals) $ 20 for diesel & maintenance
Immunization	48 vaccinators	None	1 refrigerator, 4 cold boxes	20000 doses triple vacc. 27000 syringes and needles	260 days of minibus	$ 1500 for diesel & main. expenses
Supervision	12 PHN	Office for record keeping in HC	1 flip board	None	200 days of motorbike	$150 for petrol & maintenance, $260 per diem

ACTIVITY 11

Work in groups to develop resource requirements for your interventions

4.6 Preparing the Plan of Action

A plan of action is usually prepared in a matrix format and will normally contain the following items: the problem, objective(s)/interventions, activities, inputs, key responsible actor/implementer, important assumptions and risks, activity monitoring indicator, planned output, activity cost and implementation time frame. An example of a plan of action is shown in Table 3.

4.7 Preparing the Budget

Definition

Budgeting is a process of costing inputs and activities into monetary terms.

Description of budget

- Budgeting is made of estimated costs of inputs and activities that will be required to implement the plan.
- There are two kinds of costs: recurrent costs and capital costs.
  - — Recurrent costs refers to the costs which you are incurring annually to keep the system running, e.g. salaries, drugs, kerosene and any other consumables.
  - — Capital/developmental costs refers to costs that are incurred on a fixed asset. An asset with a life span of more than one year, e.g. x-rays, machines, thermos, and weighing scales, has two types of costs, namely: initial costs (purchasing price) and recurrent costs (amortization or depreciation).
- Amortization costs are useful for planning since they tell us when the capital inputs are going to be replaced. This can be accommodated in the long-term budget if the budget duration is more than one year, e.g. the three year rolling plan and forward budget.

Costing of activity inputs

Costs of inputs have to be estimated before and thereafter transferred to the budget. This process is referred to as cost analysis. An example of cost analysis is shown in Table 4.

TABLE 3: EXAMPLE OF PLAN OF ACTION MIX

Problem: High Maternal Mortality Rate (MMR) of 229/100,000 (National Rate is 400 - 600/100,000)
Objective: To reduce MMR from 229 to 195/100,000 by the end of 1999

Intervention (How)	Activity (what)	Operational target (What is to be achieved)	Time frame (When)	Responsible (Who)	Progress indicators (What measurement)	Method of monitoring (what tool)	Resources needed (with what)	Funding agency (Who finances)	Estimated cost (What cost)	
									TSH	US $
1.Strengthen referral of high risk pregnant mothers	1.1 Establishment of maternity waiting homes	To mobilize community to construct the maternity waiting home near the district hospital and 2 health centres	Jan to June	DMCHC	- Site identified and cleared - Mobilization of resources - Physical construction in progress	- Visit reports	- Human labour - Local building materials - Transport	- Community contributions - Cash/material contribution by Local Government Authority - Central gov't - Donor contribution		
	1.2 Training of TBAs	Train 20 TBAs in emergency and obstructed labour care for 5 days	August	DMCHC and DMO	- Resources mobilized - Number of TBAs identified - Number of TBAs trained	- Visit reports	- Stationery - Allowances - Fuel - Vehicle - Classroom - Refreshments	- Local Government Authority - Donor		

TABLE 4: EXAMPLE OF A COST ANALYSIS TABLE

Intervention	Activities	Inputs	Unit cost	Total cost
Training	Refresher courses for 20 TBAs at district headquarters for 7 days	- Allowances - Stationery - Vehicle, fuel & maintenance - Hall charges - Refreshments	- Allowances (i) Shs 15,000 x 20p x 8 days = 2,400,000 (ii) Shs 5,000 x 5 Facilitators x 6 days = 150,000/= - Stationery 70,000/= - Fuel & maintenance 70lts x Shs 400/= = 28,000/= - Hall charges 6 days x Shs 20,000 = 120,000/= - Refreshments 25p x Shs. 2,000 x 6 days = 300,000/=	3,068,000/=

Types of budgeting

- *Line item budgeting:* provides estimated costs of each item in the programme (see example in Table 5.1)
- *Programme budgeting:* is a sum of estimated line item costs in one programme (see example in Tables 5.2 and 5.3)
- *Performance budgeting:* actual costs of activities budgeted for in details. (see example in Table 6)

Summary

Preparing a budget implies conversion of inputs, activities, targets and support services into money. The budget is made up of recurrent (ongoing/routine) and developmental (capital - fixed asset) costs within a period of time.

ACTIVITY 12

- List all the activities and inputs required to solve the priority problem that you have identified in your district.
- Mention all the support services needed, such as transport, personnel, drugs, time, communications, HMIS and training to enable you to solve the problem.
- Indicate which activities, inputs and support services are recurrent and capital investment.
- Cost the activities, inputs and support services mentioned.

TABLE 5.1: EXAMPLE OF A LINE BUDGET

Line items	Cost estimates (TSh)	Sources of funding			
		Community (Tshs)	Government		Donors (Tsh)
			Local (TSh)	Central (TSh)	
A. Training 1. Refresher courses (on site) for senior staff 1.1 TBAs at District HQ	**3,068,000/=** (see cost analysis Table 2)	-	-	3,068,000 (see cost analysis Table 2)	-
1.2 PHNs, Vaccinators					
B. Repair and Rehabilitation 1. Facilities to accommodate programmme 1.1 Prepare room for mother education in 4 dispensaries 1.2 Rehabilitate 4 VIP latrines 2. **Repair of equipment** 2.1 Health centre equipment related to maternal care 2.2 Repair of 3 bicycles for dispensaries					
C. Staff Emoluments (only additional staff paid for by the district shall be remunerated) One maintenance and repair man					
D. Supplies 1. Drugs 1.1 Drugs for the health centres related to referred maternal emergencies 1.2 Drugs for the dispensaries related to Antenatal Care 1.3 Drugs for the TBAs (Iron, FP means, antimalarial) 2. Sundries 2.1 Sundries for the health centre related to maternal care 2.2 Sundries for the 4 dispensaries related to maternal care 2.3 Sundries for the TBAs (umbilical thread, cotton, etc.)					

TABLE 5.1, CONTNUED: EXAMPLE OF A LINE BUDGET

Line items	Cost estimates	Sources of funding			
		Community	Government		Donors
			Local	Central	
E. Other Materials Other materials (such as stationery, pens, record books, etc.).					
Subtotals					
F. Vehicle Operating Costs 1. Fuel 2. Repair & maintenance					
G. Supervision 1. Transport 2. Materials used (for training, etc.)					
H. Maintenance & Repairs 1.Materials (cement, etc.) 2.Spare parts 3.Service charges					
Total costs					

TABLE 5.2: EXAMPLE OF A PROGRAMME BUDGET FORMAT FOR MATERNAL AND CHILD HEALTH (MCH) BY LINE ITEM AND PROGRAMME COMPONENT (RECURRENT COSTS)

Line item	Programme components							
	Maternal health	Under fives clinics	EPI	Health education	Family planning	Diarrhoeal diseases control	ARI control	Totals
Repair & rehab.								
Staff & emoluments								
Supplies								
Training & supervision								
Vehicle operating costs								
Others								
Total recurrent costs for MCH Services								

TABLE 5.3: EXAMPLE OF A PROGRAMME BUDGET FORMAT FOR MATERNAL AND CHILD HEALTH (MCH) BY LINE ITEM AND PROGRAMME COMPONENT (CAPITAL COSTS)

Line item	Programme components							
	Maternal health	Under fives clinics	EPI	Health education	Family planning	Diarrhoeal diseases control	ARI control	Totals
Transport, e.g. bicycles, motorcycles and 4 - wheel drive vehicle								
Equipment, e.g. thermos flasks and refrigerators								
Others								

TABLE 6: EXAMPLE OF A PERFORMANCE BUDGET FORMAT

Rolling plan and forward budget for the financial year.....
Sub-Warrant Holder: District Medical Officer
Station .....

SUB-VOTE	ITEM NO	DESCRIPTION	ACTUAL EXPENDITURE (PRECEDING F/YEAR 1997/98)	ESTIMATES CURRENT FINANCIAL YEAR 1998/99	ESTIMATES NEXT YEAR				ESTIMATES 1999/2000	ESTIMATES 2000/01
					Community	Central Government	Local Gov't	Donor		
Total										

4.8 Implementation

Once the planning and budgeting has been accomplished and approved by the appropriate authority, the success of the plans will depend on how well they have been implemented. There are three aspects that should be kept in mind while implementing the plan of action. These are:

- Effectiveness
- Efficiency
- Timeliness.

Effectiveness

When an activity is implemented, the result is called the output. For example if you carry out a study, the result is a study report. The study report therefore would be an output from this activity. Efficiency refers to what extent the particular activity outputs have been achieved as compared to the targets set. In order to achieve the objectives set in the plan of action, all activities should be fully implemented, reaching the set targets and covering all the activity components.

Efficiency

Implementation of any activity involves utilization of resources. This could be human resources, financial resources, time, and other material and logistical resources. As described earlier, implementation of an activity results in an output. Efficiency relates the output to the resource inputs and refers to the measure of output per unit resource input.

Example:

Two teams of laboratory technicians, with the same equipment, are given 100 blood samples each to test for malaria parasites. Team A completes the tests in 5 hours and Team B in 4 hours. This means that Team A carries out 20 tests per hour while Team B carries out 25 tests per hour. Team B therefore produces more output than Team A, given the same resources. One can then conclude that Team B is more efficient than Team A because it produces more output per unit resource input.

Timeliness

While drawing up the plan of action, activities are planned to be implemented at given times and within a given period of time, and in a number of cases future activities depend on the completion of some activities. In the latter case it is clear that partial or lack of implementation of activities at the scheduled time would lead to delayed or no implementation of future activities. It is therefore important to endeavour to undertake and complete activities as scheduled in the plan of action. However, a number of times this is not possible due to factors unanticipated. These factors include, among other things, political activities, availability of funds, unplanned activities, e.g. the District Health Team is promptly called to attend a one-week workshop organized by the Ministry of Health, transfer of personnel, and unavailability of logistics. Harmonization of plans, early requisition of funds and other logistics and supplies, and use of coordination meetings could help in reducing some of these problems.

Proper implementation of activities requires prior preparation in identification of resources needed, allocation of tasks and setting deadlines. The team leader or the person responsible for the activity has to supervise the preparation and the implementation of the activity to ensure that the various tasks are

accomplished within the set deadlines. These deadlines and allocated tasks should be made known to all members of the team involved in the activity. This will ensure timely completion of activities.

4.9 Monitoring and Evaluation

The key question to be addressed at this stage of the planning cycle is "how will we know when we get there and what have we achieved ?"

It is expected that DHMT members will be able to:

- develop indicators;
- identify means of verification; and
- plan for monitoring and evaluation of the district health plan.

Monitoring

What is monitoring?

Monitoring is a systematic and continuous assessment of the progress of an activity over time. Monitoring can be done through the process of collecting, coordinating, processing, measuring and communicating information to assist management in decision-making.

Monitoring encompasses follow up of **Inputs** (vaccines, funds, personnel, etc.), the **Process** (activities/tasks being done according to accepted norms and standards), **Outputs** (products meet specifications, services are delivered as planned, training results in new skills, etc.) and finally the **Outcome** (the short-term effect of the programme or campaign).

Monitoring ensures that:

- work progresses according to schedule;
- standards such as storage and administration of vaccines are maintained;
- resources are used rationally and as planned;
- the required information is available and used, etc.;
- problems are detected during implementation period so as to undertake corrective measures; and
- plans are verified to ascertain that they are being implemented in the way and manner planned.

> Monitoring is carried out internally by the district health management team in the course of implementation of the district health plan. Implementation of the district health plan should be the main focus of deliberations during the DHMT meetings.

Tools for monitoring

These are:

- Health Management Information System and periodical reports.
- Supervision reports.
- Programme progress reports.
- Project plan of action.

Evaluation

Definition

Evaluation is the systematic assessment of actions in order to improve planning or implementation of current and future activities. Evaluation includes areas of context, input, process and impact to assess whether the set objectives have been achieved. It can be internal, that is carried out by the implementers, or external.

Why evaluation?

The essence of evaluation is to determine programme performance, effectiveness and efficiency. In other words, an evaluation can be carried out to:

- Decide whether an activity was worth doing.
- Determine whether the objectives set were achieved.
- Determine (formative evaluation) whether activities should be continued or not.
- Determine whether the project should be extended elsewhere, etc.

When to evaluate

Before implementation:

- to assess development needs and potentials;
- to determine feasibility of the plan.

During implementation (formative evaluation):

- to identify areas for changes or modifications;
- to detect deficiencies and ensure immediate redesign of intervention strategies.

At the end of programme (summative evaluation):

- to assess programme or project effect and outcomes with a view to obtaining information on:
  — effectiveness of the programme in achieving its stated objectives;
  — its contribution to developmental goals;
  — efficiency of the programme or project in utilization of resources;
  — sustainability of the project results; and
  — whether to continue, modify or terminate the project.

Comprehensive evaluation addresses **context, inputs, process,** and **outcome.** However, comprehensive evaluation may be too demanding in terms of resources and, hence, is extremely expensive.

Before carrying out an evaluation, proper plans must be made to include correct logistics and methodologies to be followed in advance.

Indicators

Definition

Indicators are variables with which we can measure changes either directly or indirectly. For example, if the objective is to train a number of health personnel annually, a direct indicator is the number of personnel trained in a year.

To judge progress in achieving the objective of improving the health of children in a given population, it may be necessary to assess such improvement by using several indicators that could indirectly measure changes in the health of children such as: nutritional status, immunization coverage, age-specific mortality, etc.

When selecting indicators, full account has to be taken as to whether they are valid, reliable, sensitive and specific.

- **Validity:** implies that the indicator actually measures what it is supposed to measure.
- **Reliability:** implies that even if different people use the indicator at different times and under different circumstances the results will be the same.
- **Sensitivity:** means that the indicator should pick changes in the situation or phenomenon concerned.
- **Specificity:** means that the indicator reflects changes only in the situation or phenomenon concerned. For example, IMR is a sensitive although very crude indicator of the level of health of a child population. It is a direct measure of death, and only an indirect measure of health, but within this limitation it is both a valid and a reliable indicator.

IMR is not specific, however, in relation to any particular health action, since its reduction can result from a large number of factors related to social and economic development, which includes health development. It can rarely be attributed to any single health action.

Types of indicators

Indicators can be grouped as follows:

Progress indicators

These are associated with the provision and coverage of health services, which may include:

- Utilization of services.
- Quality of care.
- Availability of safe water in the home or within a walking distance.
- Adequate sanitary facilities.
- Availability of drugs throughout the year.
- Ratio of population to different kinds of health workers in PHC and referral levels.

Input indicators

These measure resources received (available), e.g. personnel, equipment and money.

Output indicators

These measure the result following the activity. For instance; the number of users covered with immunization, contraception acceptance rate, etc.

Developing indicators

Specific evaluation indicators have to be developed. These will form a basis for judging the worthiness of a project or activity.

ACTIVITY 13

From your action plans, develop appropriate progress indicators for each activity. Specify means of verification for each indicator.

4.10 District Health Plan Write-up

The following outline shows the essential elements of a DHP:

Executive Summary:

- Maximum of 2 pages.
- Summarizes major objectives, interventions and resources required.
- Specifies how the plan is to be implemented, monitored and evaluated.

Introduction:

- Statement of broad overall objectives of the DHP.

Situation analysis (from the district health profile):

- Description of the district.
- Primary health problems.
- Morbidity and mortality statistics.
- Health problem/need priorities.
- Major secondary (or contributory) problems.
- Status of health services.
- Health service achievements.
- Health service shortcomings.
- Influences and problems imposed (if any).
- Review of available resources, e.g. human, material and financial resources and sources.

Planned intervention measures:

- Objectives and targets.
- Planned activities.
- Inputs.
- Main actors and partners.

Plan of operation and budget.

Monitoring and evaluation.

Assumptions and risks.

The completed district health plan should be endorsed by the district health board, and then approved by the district council and incorporated into the overall district plan.

Unit 5: Essential Health Package

Introduction

One of the pillars of health sector reform is the concept of cost-effective and quality essential health care packages. Research and analysis are required to determine the content of these packages. The DHMTs must have at least a basic understanding of the rationale behind the development of these packages since this will motivate them to assure their implementation.

Objectives

At the end of this unit, participants should be able to:

- Participate effectively in a discussion concerning the determination of an essential health care package.
- Participate in a cost-effectiveness analysis.
- Interpret a paper that uses disability adjusted life years (DALYs) methodologies to determine essential health care packages.

5.1 Definition

An essential health care package will comprise health interventions (promotive, preventive, curative and rehabilitative), including the required inputs, selected on the basis of their ability to have the greatest impact on disease burden reduction at various levels in the country. The interventions are selected after taking into consideration issues such as cost-effectiveness and equity of access. The package will differ from country to country, depending on the country's health priority problems and economic situation.

5.2 What Should be Included in the Package

The district will be guided by policy from the Ministry of Health. The package will consist of cost-effective interventions, together with the required inputs and management support. It will contain non-negotiable interventions on the basis of compliance with regional or global disease control strategies, e.g. eradication of polio and immunization against tetanus.

5.3 Determining the Content of the Package

There are two methodologies being used in the African Region to determine the content of the health package, namely:

- the cost-analysis methodology; and
- the DALY methodology.

5.3.1 Determining the cost-effectiveness of interventions using the cost-analysis methodology

The first step involves using health services data supplemented by community-based data on morbidity and mortality rates to determine major causes of mortality and morbidity at various levels in the district.

Health information and data from countries in the African Region indicate that the major causes of morbidity and mortality in Africans are malaria, HIV/AIDS/STD, tuberculosis, ARI, malnutrition, diarrhoeal diseases, and poor reproductive health.

Countries need to address these problems in the health packages they deliver.

Determining the cost of each activity

First, classify and quantify the inputs required for each activity into capital and recurrent expenditures as shown in Table 7.

TABLE 7: EXAMPLE OF CLASSIFICATION OF COSTS BY INPUTS

Inputs	Quantity	Unit costs	Total cost
Capital • Vehicles: bicycles, motorcycles, four-wheel drive vehicles, trucks • Equipment: manufacturing machinery, scales, other equipment with unit price of $ 100 or more, • Buildings: space, health centres, hospitals, training schools, administrative offices, storage facilities • Training: no recurrent training activities for personnel; training occurs only once or rarely • Social mobilization: non-recurrent activities, e.g. promotion and publicity campaigns that occur only once or rarely.			
Recurrent • Personnel (all types): supervisors, health workers, administrators, technicians, consultants, casual workers • Supplies: drugs, vaccines, syringes, small equipment (unit cost less than US$ 100)* • Vehicle operation and maintenance: petrol, diesel, lubricants, tyres, spare parts, registration, insurance • Buildings operation and maintenance: electricity, water, heating fuel, telephone, telex, insurance, cleaning, painting, repairs to electric supply/appliances, plumbing, roofing and heating • Training: recurrent (e.g. short in-service courses) • Social mobilization: e.g. community meetings • Other operating costs.			

*Countries will determine the threshold value.

Secondly, determine the unit cost of each input so as to determine the cost of the different options available. Cost is the value of resources used to produce a health service or set of health services.

Thirdly, determine the annual cost of each category of inputs as shown in Table 7. This will enable the DHMT to know the share of each input in the total budget and assist it in identifying where to cut costs and improve efficiency in the implementation of health packages.

By determining the annual cost of each category of inputs, the DHMT can determine the share of each input in the total cost as shown in Table 8.

TABLE 8: SHARE OF COST BY INPUT CATEGORY

Input category	Annual cost (currency)	Share of total cost (%)
Capital		
Vehicles	5000	10
Equipment	5000	10
Building space	5000	10
Training, non-recurrent	0	
Social mobilization, non-recurrent	0	
Subtotal capital	**15000**	**30**
Recurrent		
Personnel	20000	40
Supplies	5000	10
Vehicles, operation and maintenance	5000	10
Buildings, operation and maintenance	1000	2
Training, recurrent	0	
Social mobilization, recurrent	0	
Other operating inputs	4000	8
Subtotal recurrent	**35000**	**70**
Total	**50000**	**100**

When calculating the cost of each activity you need to find a reasonable and accurate way of dividing the cost of shared resources among user programmes (cost allocation). Various parameters are used to determine cost. The information provided below can assist you to determine such costs.

Table 9 provides an example of how to determine shared costs.

Measuring effectiveness

Cost information can be used to determine the efficiency of each activity or intervention in the essential package chosen in terms of outcomes, outputs, results and impact obtained as a result of introducing the activity or intervention.

TABLE 9: DETERMINING SHARED COSTS

Input	Parameters that can determine cost
Vehicles	Distance travelled and time used
Equipment	Time used
Building	Time used, space used
Personnel	Time worked
Supplies	Weight, volume
Vehicle operation	Distance travelled/time used
Building operation and maintenance	Time used /space used
Other inputs	Miscellaneous

Effectiveness is measured by assessing to what extent objectives have been realized or achieved. Most PHC programmes aim at improving the health status of the population they serve, for example reduction in cases of immunizable diseases or reduction in maternal mortality.

$$\text{Efficiency of each intervention is} = \frac{\textbf{Cost}}{\text{Effectiveness}}$$

$$\text{i.e.} = \frac{\textbf{Cost}}{\text{Number of lives saved}}$$

A health programme or service delivery unit is more efficient if it gives more benefits from the use of a given set of resources.

Choosing an indicator of effectiveness

You need to choose an indicator that compares fairly to the activities you are trying to compare. You want an indicator whose numerical value will reflect differences between the alternatives that are comparable.

For example, you cannot compare doctors in the hospital setting with TBAs in a village using the outcome of a number of births. Doctors should be compared with other doctors under similar operational settings and criteria. Likewise, TBAs should be compared with TBAs. You could also assess health outcomes for similar health problems in two different health centres. Indicators of effectiveness should reflect the outcome which you are most interested in. The intervention with the greatest effectiveness is what you are looking for (although sometimes it may be the most expensive).

Locating data on effectiveness

It is advisable that you identify suitable measures of effectiveness that can be obtained from existing health information system records. If the current information system you are using is not able to assist you in this process because available records are not good enough, then investigate the possibility of improving the data system and conducting research within the limits of your time and resources.

Source and type of data

- Outpatient records at health centres or hospital.
- Inpatient records at the hospital.
- Data from laboratory data on diagnosis of some disease conditions, e.g. malaria information from survey results.
- Community records.
- Surveys.
- Records from other sectors.

Expressing measures of effectiveness

The measures should be quantifiable. For example:

- 800 visits made.
- 1200 children vaccinated.

It is possible to express effectiveness as a proportion, for example, percentage of children vaccinated. It is important to bear in mind that using percentages may create problems when you are dealing with costs.

Determining cost-effectiveness

Cost-effectiveness analysis is a technique that DHMTs can use to assist them in decision- making. The technique will assist DHMTs to identify which areas of the programme are effective and which are not. The technique will help the DHMTs to design a better health package that takes into account cost-effectiveness.

Cost-effectiveness analysis involves assessing the gains (effectiveness) and resource input requirements (costs) of alternative ways of achieving a specified objective.

Cost-effectiveness analysis: steps to follow

- Identify objectives for each intervention in the package.
- Identify possible ways of achieving the objectives.
- Identify and measure the cost of each option.
- Identify and measure the effectiveness of each option.
- Calculate the cost-effectiveness of each option and compare the results.

Identify objectives of the interventions

The justification for doing the analysis may be the result of identification of a problem in the implementation process such as low immunization coverage. The objective of the programme in such a situation would be to increase immunization coverage.

It is important to remember that better objectives are obtained from well-defined problem statements. The more precise your statement of objectives is, the easier it will be to use cost- effectiveness analysis because both the costs and effects are likely to be more clearly defined and easier to measure. For example, if the objective is to reduce mortality from tetanus by 25%, you need to translate this into absolute figures; if there are 200 cases of fatal tetanus, the intended reduction is by 50 deaths.

Identify possible ways of achieving the objectives

To undertake a cost-effectiveness analysis, you need to identify a minimum of two options of achieving the objectives and compare the cost of each option. For example, you could compare the cost of using two drugs to treat a similar condition.

Identify and measure the cost of each option

The resources you are going to cost should be those that are responsible for producing the effect you will be measuring. In measuring costs you need to be comprehensive. Include in your costs all the inputs that are put to work in that input. Donations and paid for resources should be included. Ensure also that you measure cost and effectiveness over approximately the same period of time.

Identify and measure the effectiveness of each option

You should use the methodology we described earlier on to carry out the measurement.

Calculate and interpret the cost-effectiveness of each option

You calculate the cost-effectiveness ratio of each option by dividing its cost by the numerical value of the effect. It is important to ensure that the effects you are measuring result from the resource inputs whose costs you are determining.

$$\text{Cost-effectiveness:} \quad \frac{\text{Cost}}{\text{Numerical Value of Effect}}$$

The ratios are then compared to determine the most cost-effective option which is the one costing the least per unit of achievement. After establishing which option is more cost-effective, include it in the package. You may wish to do a follow-up and find out what is responsible for the difference between the two. This will assist you in improving your programme design or in the implementation of the activities.

For example, if you find that certain health centres are more efficient than others are, you may wish to find out the reasons and take action. It could be that health staff require some training or that they are just wasteful.

5.4 Steps to Follow in Selecting Cost-effective Interventions

In determining the cost-effectiveness of a package, the following should be taken into consideration:

- The fact that resources are limited means that they should be used efficiently.
- Maximize the use of resources to attack leading causes of death and hence save more productive years of life.
- The bulk of health conditions should be treated at the lowest level possible in order to reduce costs.
- Higher levels of health care should only handle cost-effective interventions which cannot be handled at a lower level (referred cases) and complicated disease conditions.

- An intervention is selected to be included in an essential health package after ascertaining that the intervention will contribute to addressing selected burdening diseases to be tackled by the country.
- The intervention in question is cost-effective.

5.5 Determining Cost-effective Interventions

- Determine the average cost of treating a particular disease condition (average cost/per person/year). This includes such costs as personnel, pharmaceutical supplies, per diem, equipment operation and maintenance, promotion, water and electricity.
- Determine the demand cost (average cost x total number of people receiving care using that same intervention).
- Determine the efficacy of the intervention (extent to which the intervention works under ideal conditions).
- Determine the quality of the intervention being applied (take into consideration factors like patient compliance, diagnostic accuracy, and health provider compliance).
- Determine the effectiveness of the intervention (efficacy x quality).
- Determine the potential DALYs saved by the intervention. (Effectiveness of intervention x total DALYs lost as a result of that disease problem) (see Annex 1).
- Determine the cost per disability adjusted life year saved = $\frac{\text{cost per year}}{\text{potential DALYs saved.}}$

The cost of the intervention (cost per year to population of district or country) depends on individual countries, that is whether the package will be determined by using national figures or districts will come up with own packages using district data.

For example:

To compare cost-effectiveness of treating a case of TB, two alternative interventions could be assessed to find out the more cost-effective intervention as shown in Table 10.

TABLE 10: EXAMPLE OF DETERMINATION OF COST-EFFECTIVE INTERVENTION

Parameters	Intervention A	Intervention B
DALYs lost per year for TB	105,232.00	105,232.00
Treatment regimen	(**A**) 2 month admitted + 4 months treated as out- patient	(**B**) 3 weeks admitted + 5.25 months as out-patient
Average cost to treat one case	US $ 381.575	US $ 287.825
Demand/year (number in need of treatment in a year)	25,000	25,000
Cost of treatment per year for 25,000 people	$ 9,539,375	$ 7,195,625
Efficacy of intervention (inherent)	80%	80%
Quality (defined by system)	60%	52%
Effectiveness of intervention (efficacy x quality)	48%	42%
Potential DALYs saved (effectiveness x DALYs lost)	50,511	43,777
Cost per disability adjusted life year saved (cost per year/potential DALYs saved)	US $ 188.856	US $ 164.372

As can be seen from this example, intervention (B) is more cost-effective than intervention (A).

ACTIVITY 14

The participants can practise the methodologies by using their own local data and comparing various interventions.

Unit 6: Disaster Preparedness

Introduction

Disasters are terrifying destructive events. Natural disasters are caused, for instance, by earthquakes, floods, hurricanes, droughts, epidemics and the like. Man-made disasters are caused by war, terrorism, and air traffic accidents. Confronting a disaster's force can be one of the most frightening experiences of a lifetime. Thinking about disasters and their resulting deaths and destruction is difficult. Nevertheless, we have to think about disaster in advance and we need to be prepared for it. When a society is well prepared for disasters, the great majority of the deaths and long-term effects can be avoided or at least minimized.

Disaster preparedness and management involves a coordinated effort of many sectors and disciplines. However, the DHMT needs to be aware of its role and prepare for its contribution.

Are you prepared in your district?

Objectives

At the end of this unit, participants should be able to:

- Describe essential facts about disasters.
- Explain the need for a district to be better prepared in facing disasters.
- Take appropriate actions in its district in managing disasters.
- Manage and control an epidemic.

6.1 Some Facts about Disasters

- Some people and communities that are already most vulnerable in daily life are also most severely affected by sudden disasters such as floods and slow-onset disasters such as famine.
- Communities affected by disasters are far from apathetic and helpless. The people in these communities are usually the first to respond and have a lot of strength that needs to be supported.
- Local health services are more able to cope with disasters than foreign teams who have to be housed and fed and do not know the local language and situation.
- Careful rationing should ensure that everyone is fed. Regular food supply is especially needed for people involved in salvage work and reconstruction.
- Teamwork is the most efficient way of dealing with disasters, especially if the teams have been trained in disaster preparedness.

- There is no clear distinction between natural and man-made disasters. Strict adherence to building codes in earthquake-prone areas significantly reduces loss of life when an earthquake occurs. Soil erosion and creation of deserts is to a large extent due to human mismanagement of the environment.
- Despite the usual urgency of the situation, an evaluation of most urgent needs should be made before overloading the system with a lot of unnecessary "assistance" and items such as out-dated medicines.
- The impact of big disasters is often felt for years.

6.2 National and International Preparedness for Disasters

To a large extent disasters can be foreseen and predicted. However, some of the "early warning systems" require expensive high technology and international collaboration. There is a need for the international community and national governments to be prepared. Drought, tropical storms and volcanic eruptions can often be predicted by the use of high technology. An earth observing system based on a number of satellites is monitoring the earth in detail.

WHO in collaboration with the United Nations High Commissioner for Refugees and a number of other organizations have developed an emergency kit with drugs and medical supplies calculated to meet the needs of 10,000 people.

International preparedness makes little sense if the national level is not prepared. There should be:

- A national health policy implemented regarding preparedness and relief.
- A person within the Ministry of Health in charge of promoting, developing and coordinating disaster preparedness.
- Emergency preparedness activities coordinated with the health sector, civil defence authorities and key ministries, health sectors and international agencies in the country.
- National operational plans for health responses to natural and man-made emergencies.
- Mass casualty management plans at national and hospital level.
- Identified disaster-prone areas, groups and high-risk seasons.
- Early warning and surveillance systems and a national reference laboratory.
- Environmental health services prepared to respond to emergencies and disasters.
- Facilities and safe areas designed as temporary settlement sites in case of disaster.
- Provision made for health services, staffing, supplies, water and sanitation for disaster situations.
- Training activities devoted to disaster preparedness.
- An organized communication centre in the Ministry of Health, an emergency budget and an emergency transport arrangement.
- Updated inventories on human resources, drugs, four-wheel drive vehicles and other potentially needed resources.
- Opportunities to test the effectiveness of emergency plans through exercises and drills.

6.3 What Should be Done at District and Health Facility in Case of Disasters

The national and international community may help, but the greatest reduction of disaster impact is expected from your local preparedness. The best preparedness consists of existing working relations, partnership, and communication network.

Special preparedness measures:

- Identify a contact person and contact network: establish in advance and regularly communicate on paper who is to contact who in case of emergencies. Such a contact chain should extend from community to district level and beyond. For preparedness to handle many casualties at hospital level, the anesthesiologists or anesthetic officers are usually the people who have received special training in handling multiple casualties.
- Identify communication channels in the district: Is there any institution with short- wave radio connections, etc.?
- Identify in advance vulnerable communities and areas.
- Make disaster preparedness plans.
- Know the transport situation in the district. Where are the vehicles, who owns them, and what procedure has been agreed on in case of emergencies.
- Have a stock of emergency drugs.
- Train health staff in monitoring and early reporting of suspected epidemics, including meningococcal meningitis, cholera, plague, etc.
- Train community members in first aid procedures.

ACTIVITY 15

Identify vulnerable groups and risky areas for a particular disaster in your district. Establish a contact chain and emergency preparedness plan for your health facility and district.

ACTIVITY 16

Drill

Organize a disaster drill or simulation with local community members, for instance a local school, to test if your emergency plan works. Use your imagination to invent a disaster, for instance a bus accident 20 km from the district hospital, with many people dead and more wounded.

6.4 Principles of Epidemic Control

Definitions

An epidemic is an unusual occurrence of a disease in a given place and time. An epidemic often evolves rapidly such that a quick response is required (e.g. cholera, meningococcal meningitis, rabies, etc).

A threatened or potential epidemic is said to exist when circumstances are such that the epidemic occurrence of a specific disease may reasonably be anticipated. This requires:

- susceptible human population;
- presence or impending introduction of a disease agent; and
  the presence of a mechanism such that large-scale transmission is possible (e.g. contaminated water supply, vector population, etc).

General principle of action

When an epidemic occurs, the resulting panic among the population and pressures of various kinds leave no time for reflecting on the soundness of the actions necessary to control the situation. Success in dealing with an epidemic, therefore, depends largely on the state of preparedness achieved in advance of any action.

Basic steps and principles in dealing with epidemics

- Institutionalize an emergency health service in the district headed by a coordinator responsible for preparing contingency plans.
- Organize your team.
- Establish an early warning system to detect any unusual incidence of a communicable disease that could cause an emergency situation.
- Use appropriate techniques in collecting, handling and transporting samples/specimens.
- Confirm that an epidemic or threatened/potential epidemic does exist.
- Ensure availability of minimum stock of drugs and supplies, e.g. i.v. fluids, antibiotics, gloves, disinfectants, etc.
- Eliminate or reduce the source of infection.
- Interrupt transmission.
- Protect persons at risk.
- Carry out active epidemiological surveillance (monitor disease trends using HMIS).
- Mobilize resources.
- Notify the relevant authorities about the epidemic.

Adequate structures must be established and maintained so that a quick response can be made to an epidemic or the threat of an epidemic. The district health managers should consider emergency health services as an integral part of communicable disease prevention and control. Training and refresher courses for the personnel responsible for disaster management should be one of the priorities in the district.

ACTIVITY 17

Recall and assemble all available information concerning the latest epidemic that occurred in your district. In view of what you have learned in this unit, review the actions that were taken during the last epidemic. Was the DHMT prepared? Then assess the present state of preparedness for the re-occurrence of such an event. Suggest improvements and incorporate them in your annual district health plan.

Suggestions for Further Reading

Health Systems Research

Varkevisser CM, Le Grand A and Mwaluko GMP. Research capacity building: the approach of the Joint Project on Health Systems Research for the Southern African Region (submitted for publication), 1999.

Publications by the WHO Health Systems Research Programme:

WHO/DGI/RTI. Health Systems Research: Does it make a difference? Update 96. WHO/AFR/97.5. Geneva, World Health Organization.

WHO/DGIS/KIT Health Systems Research Training Series (originals in English):

Volume 1: Promoting Health Systems Research as a Management Tool.
Volume 2 Part I: Proposal Development (translated into French and Portuguese).
Volume 2 Part II: Report Writing (translated into French and Portuguese).
Volume 2 Part III: Computer based companion to Volume 2 Parts I and II.
Volume 3: Strategies for Involving Universities and Research Institutes in Health System Research.
Volume 4: Managing Health Systems Research.
Volume 5: Training of Trainers (translated into French).

WHO/AFRO Health Systems Research Programme for Eastern and Southern Africa:

Summaries of Health Systems Research Studies 1987–1993: Joint HSR Project, Harare, Zimbabwe. 1994.
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Joint WHO/RTI/DGIS Project on Health Systems Research – It can make a difference series:

Volume 1: Availability, provision and use of drugs. 1994.
A Companion to Volume One: "Essential Drugs: Essential to Whom?"
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McPake B and Ngalande-Banda EE. Contracting out of health services in developing countries. *Health Policy and Planning,* 1994;9 (1):25–30.

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Scrivens E et al. Measuring the impact of health interventions: a review of available instruments. *Eff Health Care,* 1985; 2(6): 247–261.

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Annex 1: Determining the Essential Package Using DALYs

DALY is an abbreviation of Disability Adjusted Life Year. DALY is a methodology used to measure the burden of each disease or condition in terms of lifetime lost due to death and disability.

Guiding process to take into account when using DALYs:

- One DALY is one lost year of healthy life.
- The DALYs lost due to a single cause will be the sum of **DALYs lost due to death and DALYs lost due to disability.**
- To calculate total DALYs for a given condition in the population, years of life lost and years lived with disability of known severity and duration for that condition must each be estimated, and then summed up.
- DALYs take into account that healthy years of life lost today have a higher value than healthy life in future. It also values years of healthy life worth more in young adults compared to early life and late life.

Determining the burden of a disease

Information on morbidity and mortality for each disease condition can be obtained from health facility data, supplemented by community-based data. Based on that information, DALYs lost for each disease condition are worked out on the principles that:

- The DALYs lost due to a single disease will be the sum of that lost due to **death** and that lost due to **disability.**
- To work out DALYs lost as a result of death, you need to know the number of people who die from a particular disease, for example malaria, in your district by age group and sex. Next, for each age group and sex, check (see Table 11) what the DALY loss for that particular disease is and multiply by the total number of deaths in that particular age group to get DALYs lost from death by that age group. You do similar calculations for other ages for the same disease and add the sum of all these to get total DALYs lost as a result of death from that disease.
- The next step is to work out DALYs lost from the same disease condition as a result of disability. For you to get that information you need to know the following information: degree **of disability** as a result of that disease condition, **duration of disability, age when disability started and sex of** affected person. Get DALY loss value for that age group and sex, multiply by degree of severity (see Table 12), multiply by number of morbidity cases for that affected age group, multiply by duration of disability. Similarly calculate morbidity for different age groups for the same disease and the sum will be total DALYs lost for the disease as a result of morbidity from that disease.

DALYs lost from that particular disease is a sum of **DALYs lost for that disease condition as a result of death plus DALYs lost as a result of disability.**

TABLE 11: STANDARD LIFE EXPECTANCY AND DALYs LOST DUE TO PREMATURE DEATH AT EACH AGE

Age (years)	Life Expectancy Females	Life Expectancy Males	Death DALYs (Females)	Death DALYs (Males)
0	82.50	80.00	32.45	32.34
1	81.84	79.36	33.37	33.26
5	77.95	75.38	35.85	35.72
10	72.99	70.40	36.86	36.71
15	68.02	65.41	36.23	36.06
20	63.08	62.44	34.52	34.31
25	58.17	55.47	32.12	31.87
30	53.27	50.51	29.31	29.02
35	48.38	46.66	26.31	25.97
40	43.53	40.54	23.26	22.85
45	38.72	35.77	20.24	19.76
50	33.99	30.99	17.33	16.77
55	29.37	26.32	14.57	13.92
60	24.83	21.81	11.97	11.24
65	20.44	17.60	9.55	8.76
70	16.20	13.58	7.33	6.55
75	12.28	10.17	5.35	4.68
80	8.90	7.45	3.68	3.20

TABLE 12: GAUGING THE SEVERITY OF DISABILITY CLASSES AND WEIGHTS SET BY GBD PROTOCOL FOR 22 INDICATOR CONDITIONS (REPRODUCED FROM THE GLOBAL BURDEN OF DISEASE BY MURRAY, C. J. L AND LOPEZ, A.D.).

Disability Class	Severity Weights	Indicator Conditions
1	0.00 – 0.02	Vitiligo on face. Weight for height less than two standard deviations
2	0.02 – 0.12	Watery diarrhea, severe sore throat, severe anemia
3	0.12 – 0.24	Radius fracture in a stiff cast, infertility, erectile dysfunction, rheumatoid arthritis, angina
4	0.24 – 0.36	Below knee amputation, deafness
5	0.36 – 0.50	Recto vaginal fistula, mild mental retardation, Down syndrome
6	0.50 – 0.70	Unipolar major depression. Blindness, Down syndrome
7	0.70 – 1.00	Active psychosis, dementia, severe migraine quadriplegia

Note: The Global Burden of Disease project (GBD) was a worldwide collaboration of over 100 researchers, sponsored by WHO and the World Bank and based at the Harvard School of Public Health — revolutionized health priority-setting when it first published its findings in 1993. The widely publicized GBD presented a bold, new analysis, providing the first plausible description of the world's health.

While it examines minutely causes of death, the GBD is most striking in its inclusion of disability. The authors here explore the technical bases and moral implications of incorporating disability in health assessments, explicating the widely publicized indicator that they have developed, the disability-adjusted life-year (DALY).

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