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ВСЕМИРНАЯ ОРГАНИЗАЦИЯ ЗДРАВООХРАНЕНИЯ
ЕВРОПЕЙСКОЕ РЕГИОНАЛЬНОЕ БЮРО

Seminar on Projections of the Future Health Situation in Europe

Tampere, Finland, 29 August - 2 September 1983

ICP/HST 009(3)/16
29 August 1983

ENGLISH ONLY

REPORT OF AN INTER-REGIONAL MEETING ON HEALTH MANPOWER PROJECTIONS

by
WHO/GENEVA

Report of an Inter-Regional Meeting on
Health Manpower Projections

Prepared by Mrs J. Cree - Elected Rapporteur

Acknowledgements

This report was made possible through the willingness of the participating countries to share the experiences and results of their national health manpower projections work with other Member States through both verbal and written presentations at the meeting. In addition, the participants, many staff members of WHO and the temporary advisers who assisted in the meeting, provided guidance, comments and support in the production of this report.

SPEECH BY THE MINISTER OF HEALTH, DR THE HONOURABLE O.M. MUNYARADZI, M.P.
TO OPEN THE MEETING ON HEALTH MANPOWER PROJECTIONS
HARARE, PARK LANE HOTEL, 29 November 1982

Mr Chairman, distinguished delegates, ladies and gentlemen.

It is a great pleasure for me to have the opportunity to address you and open this Inter-Regional Meeting on Health Manpower Projections. On behalf of the President, the Prime Minister, Government and People of the Republic of Zimbabwe, I consider it an honour to welcome you all to our country. I hope that the few days which you will spend with us will be fruitful and worthwhile.

I have also noted that you have set a day aside for a field visit and I am happy that you are taking time to see something within our Health Services.

Systematic health manpower planning and projections for the entire National Health Service is a fairly new approach for us and, I believe, for many other countries. One of the major outcomes of the worldwide goal of health for all by the year 2000 has been an increased awareness of the need to make definite plans for achieving this goal. The setting of a target date has forced us to at least begin to take stock of where we are in relation to the goal and ponder on what needs to be done to achieve it.

In support of its Member States the World Health Organization has also outlined as one of its priorities for 1984-1987, a programme of coordinating and assisting countries to "refine and implement their strategies for Health for all and to evaluate progress towards the attainment of this goal".

Like all the other nations, we in Zimbabwe have also accepted the year 2000 as our target date for achieving health for all for our people. We have outlined a definitive programme of how we plan to ensure that the health services will be universally accessible. At village level we have accepted that each community should have its own village health worker who will be able to provide information and advice about basic health care. We have further accepted that there should be enough health centres so that no one has to travel more than 10 kilometres to their nearest health centre. Each of our 55 Districts will have a District Hospital and in each province a Provincial Hospital so that secondary and tertiary services are available to those who need this level of health care.

The various levels of health facilities described above require various types and levels of health manpower. Therefore as we produce additional health facilities and we increase our outreach activities, we have to simultaneously develop and implement plans to ensure that there will be the required staff for this expansion. I believe this is where the focus of your activity this week, which is "Health Manpower Planning and Projections", comes in.

The goal of manpower planning and making projections is to ensure that the right type of training is given to the right numbers and types of people who will then be able to give acceptable and affordable care to the people at the various points of the Health Service from the primary to the quartenary levels of care.

As has been stated on many occasions, manpower is one of our most precious resources. It requires a long time to produce and once produced cannot be stored or discarded at will. Furthermore, in order to ensure that the manpower produced keeps abreast of the rapid developments in health, the skill and abilities of the health workers must be maintained with continuing education and in-service training. This, therefore, means that very careful planning is required for the numbers to be trained in various categories as well as continuous monitoring of other training and support activities of service and staff development.

The above points are by no means the only issues to be tackled. The challenge of manpower planning and making projections is a never ending process. Whilst we can estimate with relative accuracy the numbers of students that we can produce annually or periodically we are not able to predict as accurately how many of those students we shall be able to retain and for what periods. Factors such as limitations in the national budget, reluctance of workers to be placed in certain areas, level of demand of the services, socio-economic and environmental factors all influence the training and deployment of health manpower.

In China, the attrition rate of health manpower is less than 0.5%. In Zimbabwe my inspired guess is that it is in the region of 10-20%. In some types of hospital the attrition rate has been as high as 60%. This demonstrates a very important aspect of health manpower planning which is that, to successfully plan for the future, the cultural, economic, political, social and ideological factors will bear heavily on the success or failure of any plans or projections. Lest we health planners are unilaterally blamed for the failure of our programmes, the political and ideological commitment to the economic and social advancement of our peoples is as important to the success of health programmes as is our task today - manpower planning. Without the strong backing of the Government and Parties we cannot succeed. Without the ideological commitment to egalitarian and equitable advancement of our people, we cannot succeed. Without the commitment to health for all regardless of race, tribe, colour, religion or creed we cannot succeed.

One of the major challenges in your deliberations will therefore be to identify possible means of building into your projection methodologies and manpower plans ways of anticipating the impact of the constraints and the unknowns mentioned above. In making recommendations for the planners it is my hope that you will also address yourselves to the issues of integration and dissemination of information from the planners to those who are actually implementing the programme and vice versa. It is one thing to collect data and plan the programme but quite another to actually implement the plans. Sometimes the difficulties at the implementing level are due to the different perspectives between the ideas of the planners and those of the implementers. It is because of this realisation that we have included provincial representatives among the Zimbabwean participants. Whilst they are not the exclusive users of health manpower, they are among the major users of various levels of manpower.

For all the reasons cited above, we place great importance on this Inter-Regional meeting and are delighted that you have chosen Zimbabwe as your venue. I hope that as you discuss the variety of methods which can be utilized in making projections, you will collectively assist each of the participating countries at this workshop to identify the most practical and useful methods appropriate to different national circumstances. The conclusion and recommendations which you make will be of great interest to us in Zimbabwe and, I am sure, in your respective countries.

I would like to take this opportunity to express our appreciation to the World Health Organization which has assisted us with financial contributions towards hosting this conference and have further provided advisers who will act as resource persons for the workshop.

I wish you the best in your deliberations and it is now my pleasure to declare, your conference open.

Thank you.

O.M. MUNYARADZI, M.P.
MINISTER OF HEALTH

MEETING ON HEALTH MANPOWER PROJECTIONS

Harare, 29 November - 3 December 1982

Table of contents

Section			Page
		Opening address given by the Minister of Health, Dr O.M. Munyaradzi, M.P. (i)	1
A		INTRODUCTION	
	1.	Background	4
	2.	Objectives	4
	3.	Participating countries	5
	4.	Conduct of the Meeting	5
	5.	Overall conclusions	6
	6.	Recommendations for follow-up	6
B		CONCLUSIONS ON UNDERTAKING HEALTH MANPOWER PROJECTIONS	7
C		RECOMMENDATIONS OF THE WORKING GROUPS	
	I	Health Trend Projections	13
	II	Health Manpower Projections and Financial Constraints	16
	III	Personnel Administration	18
	IV	Health Manpower Policy and Plan Formulation	22
	V	Health Manpower Monitoring	24

ANNEXES

1.	List of Participants	28
2.	Agenda	31
3.	Summary of Country Experiences	33

SECTION A - INTRODUCTION

1. BACKGROUND

1.1 Achievement of health for all by the year 2000 requires careful planning for the development and utilization of health manpower. A crucial component of this planning is the projection of a country's future demand for health manpower and of potential future manpower supply.

1.2 In this context, a Health Manpower Projections Project was initiated by WHO in 1981. As the first step in this Project, a consultation was held in Geneva from 22 to 26 June 1981 with participants from nine developing countries together with regional and headquarters WHO staff. The objectives which were adopted for the Project were as follows:-

(a) To select simple methodologies for projecting health and health-related manpower requirements and supply appropriate to the socioeconomic conditions of participating countries.

(b) For the participating countries to use the methodologies in order to make their own health manpower projections.

(c) To develop approaches to the evaluation of projections and to the use of indicators to monitor health manpower development in the participating countries.

(d) To disseminate the methodologies, supported by country experiences, to other countries to stimulate similar efforts.

1.3 At this initial consultation, each participating country developed a plan of action for the projection of their future health manpower requirements and supply and it was agreed that a second meeting would be held during 1982 to discuss the results of this work.

1.4 In accordance with the agreement reached in Geneva, the second meeting of the Health Manpower Projections Project was called for 29 November to 3 December 1982. At the invitation of the Government of Zimbabwe, the meeting was organized and hosted by the Ministry of Health of Zimbabwe and was held in Harare.

2. OBJECTIVES

2.1 The objectives of the meeting were as follows:

(a) To review the experience of participating countries in the use of different methods of health manpower projections.

(b) To review the contributions made by the results of these projections to the processes of planning and strengthening primary health care and other health services towards the goal of health for all by the year 2000.

(c) To make recommendations on when health manpower projections should be used, which projection methods are appropriate to different national circumstances and how the results of projections should be used to make the maximum contributions to planning and strengthening health services.

(d) To consider the major issues arising from the integration of health manpower projections into the wider activity of health manpower management and to recommend how this integration might best be accomplished.

3 PARTICIPATING COUNTRIES

3.1 Of the nine countries represented at the first consultation on health manpower projections held in 1981, three were unable to attend the second meeting in Harare (namely, Bangladesh, Dominica and Vanuatu). However, all other countries that originally participated were able to send representatives. In addition, due to the wide and increasing recognition of the importance of health manpower planning, three additional countries were able to participate in the second meeting - Mozambique, Swaziland, and Zambia.

3.2 As the meeting was held in Harare, the Zimbabwe Ministry of Health was able to involve representatives from different levels of its health service, as well as from other ministries associated with manpower development, so as to take full advantage of the experience of the international participants and to explore their own local problems and plans.

3.3 A full list of participants is given in Annex 1.

4. CONDUCT OF THE MEETING

4.1 The meeting was officially opened by the Minister of Health of Zimbabwe, Dr O.M. Munyaradzi, M.P., who emphasized the importance of developing and implementing plans for health manpower simultaneously with those for the overall development of health services and facilities to meet the goal of health for all by the year 2000. He also highlighted the importance of political and ideological commitment to the social advancement of all people if the programmes for health are to succeed and be stressed the need for those planning the health services to work closely with those responsible for implementation.

4.2 Dr R.J. Ndlovu was elected Chairperson and Mrs J. Cree, Rapporteur. The participants from countries then made presentations of the work they had undertaken on manpower projections, providing details of their country's health situation, current health manpower, the methodologies they used to project health manpower, the results of the projections of future manpower requirements and supply, particular problems they were facing in implementing their health manpower plans, and the ways in which they were attempting to overcome these difficulties. A brief summary of each of these presentations is given in Annex 3. The overall conclusions drawn from countries' experiences, as given in the presentations and in the written reports which supported their presentations, are given in Section B.

4.3 Having drawn the conclusions from the work undertaken on health manpower projections, the meeting turned its attention to the context in which these projections are made and the follow-up work required to translate these projections into plans of action. Participants divided into working groups to discuss the following areas:

- Health Trends Projections
- Resource Forecasts and Constraints
- Health Manpower Policy and Plan Formulation
- Health Manpower Monitoring
- Personnel Administration

The conclusions reached by the working groups were presented and discussed in plenary session. A summary of these conclusions is given in Section C.

4.4 The meeting drew to an end with a discussion of possible follow-up steps to this meeting and recommendations were made for subsequent actions (see paragraph 6 below). The meeting was formally closed by Dr Westwater, Deputy Secretary of the Ministry of Health, Zimbabwe.

5. OVERALL CONCLUSIONS

5.1 The work undertaken by participating countries on health manpower projections, as evidenced by the reports, presentations and discussions at the meeting, has clearly been of great benefit to the development of their national health manpower planning efforts. Moreover, through dissemination of the conclusions drawn from the collected work and experiences of the participating countries and, if possible from the future publication of comprehensive case studies based on this work, other countries will have available guidelines for the development of similar efforts. Even at the meeting itself, where participating countries found they were at different stages of development in their health manpower projections work, valuable guidance was given to them through the experiences of other participants.

5.2 As well as illustrating the importance of health manpower projections, the experience of participating countries has highlighted the need to view the projections as only one part of the whole health manpower planning process which, in turn, is one component of the overall health planning process. Moreover, the intention of all planning is to form the framework for action and the countries involved in the health manpower projections exercise are now moving rapidly towards a position where they are encountering new sets of problems related to implementation and management. The meeting provided a forum at which some of these issues could be aired and discussed and the conclusions drawn have provided a foundation for further initiatives in national health manpower development.

6. RECOMMENDATIONS FOR FOLLOW-UP

6.1 The country participants recommended that, in addition to the summaries of country experiences presented in the report of the meeting, there should be a further publication which would provide full reports of the national health manpower projection projects in the form of a series of case studies.

6.2 The country participants agreed that the work undertaken so far on health manpower projections represented only a first step in the development of national health manpower policies and plans. In order to ensure that the benefits of this initial work were carried forward and developed, there should be a further international meeting held in 1-2 years' time with the objectives of:

(a) evaluating the validity of the projections undertaken by countries in the light of subsequent events.

(b) exchanging and discussing country experiences in the use of their health manpower projections in policy and plan formulation and in the implementation of health manpower development programmes.

6.3 It was agreed that in order to maximise the benefits of a further meeting and to ensure that experience is not lost due to staff movements, each participanting country should maintain an ongoing record of events and developments in the field of their health manpower projections, including monitoring evaluation and impact upon implementation.

6.4 It was agreed that health trend projections are an essential and important component both of health manpower projections and of the health planning process and that just as support had been given to health manpower projection projects, efforts are now required in the area of general health trends projections as a national health planning and management tool.

It was noted that an international seminar had, in fact, been arranged for December 1983 to be held in Manila. The background paper entitled "Health Trends Projections" circulated to the current participants explained the objectives of this seminar and it was requested that those interested in contributing to the seminar should contact Mr Dowd at WHO in Geneva.

6.5 It was recommended that in order to consolidate and develop the work undertaken on health manpower projections, attention now needs to be devoted to the implementation aspects of health manpower development programmes. In this respect, requests were made for support to countries in order to:

(a) enable collaboration between countries more advanced in the implementation of health manpower development programmes (for example Indonesia) and those at an earlier stage of development;

(b) undertake studies of different aspects of health manpower programme implementation - particularly in the field of health manpower management - which could be disseminated for the benefit of other Member States.

SECTION B - CONCLUSIONS ON UNDERTAKING HEALTH MANPOWER PROJECTIONS

1. THE VALUE OF UNDERTAKING HEALTH MANPOWER PROJECTIONS

1.1 All participating countries found health manpower projections useful as an integral part of health manpower planning and, through this, of overall health planning.

1.2 Health manpower projections are particularly useful for the efficient and economical introduction of new health services which, in most countries, includes the development of primary health care.

1.3 There may well be different benefits to be obtained from:

a) the process of producing projections in conjunction with senior health service staff since it offers those involved a greater insight and understanding of the health manpower system and its dynamics;

b) the results of the projections being available to senior health decision-makers thus contributing to better informed and more robust decisions.

1.4 Health manpower projections can contribute to decisions on policy formulation, strategy, programming and implementation, i.e. the projections can indicate the implications for health manpower of different policy options, can point to the strategies available to achieve the agreed policies, can identify the speed at which progress can be made in implementing the strategies (programming decisions) and can help to establish the necessary implementation procedures and activities.

2. APPLICABILITY OF HEALTH MANPOWER PROJECTIONS

2.1 The technique of health manpower projections is widely applicable and is relevant to all countries whatever their stage of development.

2.2 Health manpower projections are applicable to all categories of health personnel in all parts and levels of the health services.

2.3 Health manpower projections are an essential part of health manpower planning and therefore of overall health planning, which in turn is an essential part of national planning.

2.4 Health manpower projections are useful whatever the planning timescales; i.e for planning in the short-term (up to four years), for medium-term (up to 10 years) and for long-term (up to the year 2000 and beyond).

3. HEALTH MANPOWER PROJECTION STRATEGIES

3.1 It is vitally important that the health manpower projections team includes those with operational experience of the health service and training activities covered by the projections in order to ensure that the projections are realistic. Health manpower projections are not intended to be theoretical exercises.

3.2 Health manpower projections must take account of resource constraints on training capacity, recruitment rates, etc. Above all, the projections must take account of the constraints of finance.

3.3 Health manpower projections should start with at least crude projections of all staff in all of the country's health services (i.e. covering government, military, industrial, private, voluntary, etc.) in order to provide the framework within which more detailed projections can be carried out, where necessary.

3.4 Health manpower projections for particular services (e.g. primary health care) should start with at least crude projections of all the major categories of health staff (e.g. doctors, nurses, paramedics) throughout the health services in order to provide a framework for more detailed projections of individual cadres within a particular service. This is important for two main reasons:

a) to provide early indications of the scale of resources required to staff each service

b) to ensure that a total picture of requirements, across all services, for an individual cadre is acquired. This is particularly important where PHC cadres are also employed on other health programmes or activities.

3.5 One useful approach to health manpower projections is:

a) first, aim for a balanced or equitable service (as between urban/rural, hospitals/health centres, curative/preventive, etc.) perhaps with minimum staffing levels.

b) then, plan for the subsequent development of a balanced service.

4. RESOURCES REQUIRED TO UNDERTAKE HEALTH MANPOWER PROJECTIONS

4.1 Manpower resources: The manpower resources required may be very small (for example, 2 man months) for national studies in small countries. On the other hand, formal exercises as part of a national health planning exercise, have involved many staff over a number of months.

4.2 Data: a) The first priority is a careful assessment of what data is already available. The aim should be to collect extra data only where these are essential for the health manpower projections.

b) Accurate, detailed and comprehensive data is preferable (if there is a sufficient number of staff with adequate skills to analyse it), but small amounts of relatively poor data are perfectly adequate for many situations. The use of a modified Delphi method, which is relatively quick and economical, is being tested in one country.

4.3 Equipment: Large data-handling exercises are best done on computer but small-scale exercises are extremely useful and the necessary calculations can easily be done by hand. In fact, it is often beneficial to carry out manual analyses, since this familiarizes those involved with the data, its problems and its inaccuracies.

4.4 Operational experience: Advice, guidance and inputs from those with wide operational experience of the health service is essential if the results are to be realistic and acceptable to decision-makers.

4.5 High-level commitment: It is very desirable that senior health officials make it clear that the health manpower projections work is important and that the results will be valued and used.

5. DATA USED IN THE PROJECTIONS

5.1 Manpower Data: This ranged from gross totals of a few selected cadres to very detailed surveys of all staff. Most countries incorporated an urban/rural distinction reflecting the importance attached to the development of primary health care.

5.2 Training Data: This was generally very good, covering intakes and outputs over several years. The quality and the comprehensiveness of training data reflects the high standards of record-keeping in most educational establishments.

5.3 Health Activity Data: In most countries statistics are incomplete and of uncertain accuracy. This does not affect health manpower projections unduly where the calculated mismatches between manpower requirements and manpower supply are very large. What is more important here is to identify the major medical conditions that staff will have to deal with in their job in order that training courses can be appropriately designed.

5.4 Health Facilities Data: Information on the numbers of health facilities to be commissioned in each period of the projections is vitally important. This information was generally available.

5.5 Amounts of Data Required: More detailed and accurate data can obviously provide more detailed and better-informed projections provided that resources are available to carry out the analyses. The most striking result found here is the power of relatively little data to produce extremely useful results.

6. TECHNIQUES FOR PROJECTIONS OF HEALTH MANPOWER

6.1 Requirements - Basis for the Projections

a) Health Needs: This is a technically good basis for projecting health manpower requirements but it requires skilled analysts and a considerable amount of data. The data are derived from expert medical judgements based on comprehensive epidemiological studies undertaken in the country. This approach calculates the services and manpower which would be required to meet the health needs identified.

b) Service Targets: This is an excellent practical approach to use at all stages of national development. It specifies the levels of service which should be provided, derived from expert professional judgements, based on current service levels, future health targets and the resources available.

c) Health Demands: This basis for the projection of health manpower requirements necessitates estimates of the level of demand for different health services in the future. It is normally used for projecting private (or paid-for) health services.

6.2 Requirements - Method of Projection

a) Population ratios: These were used by most countries for community- based health workers. They were also used for projections of medical staff.

b) Facility-based projections: In all cases manpower requirements for the higher levels of referral (e.g. provincial/central hospitals) were projected using facility staffing schedules (i.e. number of staff per bed, etc.).

c) At the intermediate levels between a) and b) above, either population ratios or facility staffing schedules or staff:workload norms were used to calculate health manpower requirements.

6.3 Requirements - Staffing Standards: Where staff shortages are anticipated, due either to production or financial constraints, countries tended to base their initial calculations of health manpower requirements on minimum staffing standards.

6.4 Supply - Method of Projection. All countries used the stock-and-flow method of projecting health manpower supply. This method involves the calculation of future manpower levels from the current stock and from the anticipated flows into and out of this stock. This method has the major advantage of showing explicitly the relative effects of all the factors (e.g. number of schools, size of classes, course drop-out rates, retirement, resignations, etc.) which will affect future health manpower supply.

6.5 Level of Detail of Supply Projections: Some countries used the simplest version of the stock-and-flow method which simply adds theoretical school outputs to the current stock of manpower. This ignores the effects of some important factors such as staff leaving rates, course drop outs, etc. However, this simplified method can be justified where the omitted factors would have only a small impact (for example, where leaving rates are less than 1%, drop-outs less than 5%), and where the period of the projection is short, say less than 5 years.

7. METHODS USED BY PARTICIPATING COUNTRIES TO DEAL WITH PROJECTED MANPOWER SHORTAGES

(It should be noted that not all the following methods may be suitable for a country)

7.1 Increase training outputs by:
- increasing the intakes of existing schools to their maximum capacity
- reducing drop-out rates from existing courses, perhaps by more careful selection of recruits or by improvements in teaching methods and/or learning materials
- increasing the number of training schools
- shortening the length of training courses thus increasing output over time
- upgrading existing staff, perhaps with short courses.

7.2 Change the functions of staff by:
- transferring tasks from one category to another
- producing a new category of staff
- on-the-job training to upgrade staff functions or to train new categories.

7.3 Increase productivity by:
- increasing manpower availability (i.e. increasing the number of days worked per year)
- increasing manpower utilization (i.e. increasing the number of hours per day during which service is actually delivered)
- increasing the rate of work (i.e. the speed of operation).

7.4 Reduce staff turnover by:
- improving pay
- improving conditions of work (e.g. accommodation, transport, etc.)
- improving opportunities for career advancement and/or continuing education.

7.5 Recruit already-trained staff by:
- attempting to attract non-practitioners back to work
- recruiting from outside the country.

8. METHODS USED BY PARTICIPATING COUNTRIES TO DEAL WITH PROJECTED MANPOWER SURPLUSES

8.1 Reduce training capacity by:

- reducing size of annual training intakes
- accepting intakes less frequently (e.g., every two years instead of annually).

Reduce or cease recruitment from overseas.

9. ENSURING THAT THE RESULTS OF THE PROJECTIONS ARE USED

9.1 The results of the health manpower projections are intended primarily for the senior managers of the staff covered by the projections (at national and provincial levels, for example), and for programme managers/directors.

9.2 The results must take account of the resource constraints facing these senior managers, particularly those of finance. For this reason, the projected staffing levels presented to the senior managers must be costed, at least approximately. It is always useful to present more than one projection, identifying the different assumptions upon which each projection is based, the possible implications of the projections on the services provided, and the different financial consequences of each.

9.3 Health manpower projections must always be based firmly and explicitly on health policies, health manpower policies and national manpower policies. However, they can be used both to test the implications of alternative policies prior to final decisions as well as to identify the manpower consequences of agreed policies.

9.4 Health manpower projections must be undertaken as an integral part of any regular health planning process in the country.

9.5 If health manpower projections are not part of a formal health planning process, the administrative and organizational channels through which the results are presented must be considered very carefully. Frequently, health manpower projections quantify, for the first time, severe manpower problems which will require correspondingly difficult management decisions.

10. USES OF HEALTH MANPOWER PROJECTIONS

10.1 Health manpower projections can provide a basis for:

- planning recruitment programmes
- planning training capacity/course contents
- distributing staff equitably between locations
- distributing staff between grades for the development and maintenance of an appropriate organizational structure and career development potential
- distributing staff between categories to derive appropriate and effective team composition
- identifying the need for new staff categories
- productivity improvements
- influencing financial allocations and distributions

11. HEALTH MANPOWER PROJECTIONS AND HEALTH MANPOWER MANAGEMENT

11.1 The only way of implementing the policies and plans based on health manpower projections is through a country's health manpower management process, i.e., the

organizational structures of the health service, the defined responsibilities and duties of individual officers, the processes and procedures for recruitment, training, deployment, career development, supervision, performance appraisal and monitoring.

11.2 The health manpower management process must operate at all levels of the health service, from the top of the Ministry of Health to first level supervisors in the field.

11.3 Health manpower projections can help both in identifying where the main problems in health manpower management are likely to arise in the future and in developing health manpower management systems appropriate to a country's needs and service requirements.

11.4 One extremely important aspect of health manpower management for the service as a whole is that of Personnel Administration, i.e., the formal administrative processes related to recruitment, transfer, promotion, payment, entry to further training, etc. The performance of the Personnel Administration function and its effect on health manpower development and on staff morale must be taken into account in health manpower projections.

12. MONITORING

12.1 Monitoring the implementation of health service and health manpower plans is vitally important to ensure the effective use of scarce resources and to enable corrective action to be taken, should problems be revealed.

Alongside the monitoring to ensure plans are being implemented as envisaged, there should be evaluative monitoring to ensure that the health manpower plans remain appropriate to the changing circumstances of a country's health requirements. Health manpower projections will not be a once-and-for-all exercise; from time to time, the assumptions made will need to be revised and the projections will need to be amended and updated. Monitoring is the means by which indications of the need to revise the projections can be provided.

12.3 One country represented at the meeting, although not as yet very far advanced in the development of its health manpower projections, has considered the area of monitoring sufficiently important to appoint an officer at the start to specifically perform a monitoring function.

13. PROBLEMS ENCOUNTERED IN PROJECTING HEALTH MANPOWER

13.1 For both requirement and supply projections, many countries would have preferred to have available more detailed and more reliable data. However, in all cases, the data that was available enabled useful projections to be made.

13.2 There is difficulty in translating statements of policies and priorities into numbers to be used in the calculations. Such statements are frequently imprecise although perfectly adequate to fulfil their original purpose of obtaining agreement between decision-makers on future policies. However, the need to quantify health and health manpower policies and plans, although often difficult, is in itself a useful process in that it often clarifies the implications of the agreed policies and plans and can lead to greater appreciation of manpower problems and processes.

13.3 Where the non-government health sector is large (such as the mission services in some countries), there are often problems in drawing these services - often with their own specific goals - together into a single national policy and planning framework. This may cause difficulties both in terms of projecting government health manpower requirements and in implementing national health manpower policies and plans.

PUBLICATIONS

The following publications may be of interest to those involved in health manpower projections and may assist them in future work in his area:

Hall, T.L. and Mejia, A., Health Manpower Planning: principles, methods and issues, WHO, 1979.

Hornby, P., Ray, D.K., Shipp, P.J. and Hall, T.L., Guidelines for Health Manpower Planning: A Course Book, WHO, 1980.

Roemer, M.I. and Roemer, R.J., Health Care Systems and Comparative Manpower Policies, Marcel Dekker Inc., New York, 1981.

SECTION C - RECOMMENDATIONS OF THE WORKING GROUPS

(I) HEALTH TREND PROJECTIONS

1. Introduction

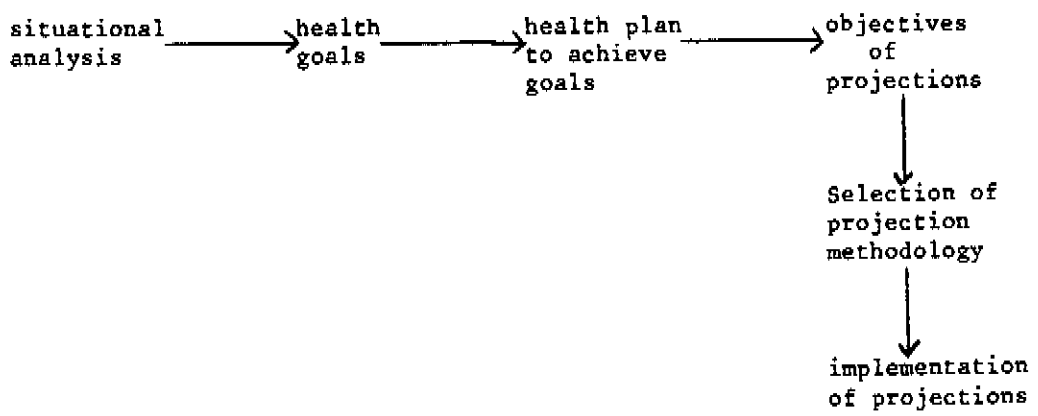
1.1 It was agreed that health trend projections are an essential component of health planning; that in the absence of projections, mismatches between various parts of the health system will occur which can only result in crisis management.

1.2 Three general areas were discussed:

a) General considerations in developing health trend projections.
b) Constraints and factors associated with projection and planning.
c) The integration of health manpower planning projections into overall health planning.

2. General Considerations in Developing Health Trend Projections

2.1 The various, preliminary stages to developing projections were outlined. These are illustrated in the diagram below:



2.2 The technical personnel involved at the working level in developing projections must be aware of the preliminary process described above; they must be aware both of the political aims of the system and the technical possibilities for achieving these aims; otherwise, efforts of this group may result in a sterile product.

2.3 These considerations lead naturally to a listing of preliminary information needed before projections can be developed:

a) Political Trend: Information must be developed on political priorities and how they impinge or motivate helth priorities.

b) Financial Situation: "The actual budget is usually smaller than that called for as a result of projections". The financial situation must be known, otherwise unrealistic projections may be developed in the absence of financial constraints.

c) Need/Demand Balance: Information must be developed on the relative emphasis to be placed in meeting a given need (even if there is at present little consumer demand) and satisfying consumer demand.

d) Health Policy.

2.4 In addition, the following background data should be collected to indicate the general "health state":

a) demography data on the population

b) mortality by cause

c) knowledge of those illnesses (especially those with high mortality) that are important in the country. Morbidity (incidence and prevalance difficult to obtain).

d) life style and environment of the population (eg., nutritional status, clean water availability, waste disposal facilities, etc.)

e) access to health and other facilities.

2.5 From the above list, the importance of the following specific types of preliminary information was emphasised:

a) A list of priorities must be established in the context of the political, financial and health situation.

b) A list of activities (uncontrollable factors) of other ministries or sectors of the society with respect to their present and planned projects and how they might influence the health status of the country. (Both the participants from Zambia and Zimbabwe explained the extensive liaison work between the Ministry of Health and other Ministries in order to keep abreast of intersectoral programmes and plans which affect the health sector).

c) If "indicators" have been established to measure "quality of life" (e.g. infant mortality, literacy rate, etc.) then the values of these indicators should be obtained as a preliminary step.

2.6 The group then considered, in some depth, the question of strategies in developing projections. It was agreed that it was preferable, if possible, not to make one projection, but as many as needed to develop as comprehensive a description of the future as possible. For example, "optimistic" and "pessimistic" projections can be developed, where "optimistic" projections assumes all planned programmes will work perfectly while the assumption underlying "pessimistic" projections may be the opposite.

2.7 The purpose of making projections under different sets of assumptions, or making projections using different methodologies is to present to decision-makers the range of future possibilities, allowing a comparison of the projected consequences of various possible health plans.

3. Constraints and Factors Associated with Projections and Planning

3.1 The following were the major constraints identified:

a) data not complete or sufficient.

b) Multi-sectoral problems: planning in different sectors not coordinated, resulting in mismatches.

c) educational system. This constraint in the inflow and putput of the trained personnel is especially critical for health manpower projections.

d) Attitudes, including:
- political
- inherited attitudes (types of applicable training, how manpower should be distributed)
- attitudes of trainers (propagates inherited attitudes concerning prestige of positions, etc.)

e) Geographical (rural, urban; mountain, plain).

f) International economic situation.

3.2 The above consists of a list of controllable and uncontrollable factors: controllable factors are those which may be influenced by actions of the country (such as (a), (b), (c), while uncontrollable factors are those which the country cannot influence by itself (such as (f)). The above is not meant to be a universal list of constraints or factors applicable to every country; it is only suggestive in the sense that they are common constraints although not necessarily important in all situations in all countries.

4. Integration of Health Manpower Planning and Projections into General Health Planning

4.1 Integration of health manpower projections, or for that matter, projections of any health sector, may have advantages for health manpower planning and health planning in general. These may include a wider availability of data, efficiency in time and effort in arriving at projections and the economies of several groups simultaneously considering common issues in each sector, and providing feedback on certain questions raised in any one sector. Since several sectors are jointly providing input, the projections of any one sector are likely to have greater credibility at higher ministerial levels. Whether such a group would be unweildy in numbers or inefficient in its mode of operation, and which other health-related sectors should be included, needs to be considered.

4.2 One issue is whether health manpower planning and projection efforts should be completely integrated into general planning efforts. A consensus was reached that departmentalization is desirable; it increases efficiency and permits health priorities to develop without undue pressure from other areas. Nevertheless, strong liaison within areas of the health sector is essential; otherwise, severe mismatches can develop. As one of many examples, one can build a great many facilities but unless training is coordinated with building programmes, these facilities can remain empty for an inordinate amount of time.

4.3 Another issue considered was whether consultations and liaison with other groups should be carried out simultaneously with developing projections or proceed only after the projections had been developed. The consensus reached was, despite difficulties which may result because of difficulties in liaison: that the iterative procedure of developing projections, then consultation, then revision of projections, and so forth, is too inefficient and time-consuming. After several consultations, the patience of those in other areas may be taxed to the point of non-cooperation. In short, concurrent efforts at consultation and projection development should be made.

4.4 An important issue discussed was the integration of projection results in providing information to international funding agencies. This is an aspect of the integration of projections and planning which needs further exploration.

4.5 Finally, it was observed that the health sector not only extracts information and projections from other sectors, but also provides inputs to other sectors. For example, in a region where malaria is endemic, those planning for labour force supply would be interested in having projections of malaria control efforts.

(II) HEALTH MANPOWER PROJECTIONS AND FINANCIAL CONSTRAINTS

1. Introduction

1.1 It was agreed that health manpower projections must take account of and forecast, financial constraints if the projections are to be viewed as realistic and useful to the development of an acceptable health manpower plan and, through this, to the overall health planning process.

1.2 In view of the above, two broad areas were discussed:

(a) the manner in which health manpower projections should take account of forecast financial constraints

(b) the merits and disadvantages of different methods of establishing financial limitations on health manpower expenditure.

2. Manpower targets versus financial constraints

2.1 Three possible approaches to the question of how manpower projections could be related to likely future financial constraints were identified:

(a) The health manpower targets which are set could, in total, be entirely constrained within the limits of the finances which are likely to be available to the health services. In effect, this method would require that the total cost of employing all of the manpower as calculated in the projections of future requirements is calculated and that, should this total cost exceed the forecasts of future finance, the manpower requirements would have to be progressively reduced to that level which could be afforded. These constrained manpower requirements would then form the manpower targets for the future.

(b) The health manpower targets could be set to represent health manpower "goals" which are not affected by financial constraints. In this case, the long-term manpower targets would represent those levels of health manpower which are considered by the experts to be the standards of staffing that the health service should aim for.

c) The health manpower plan could identify both unconstrained manpower goals as described in (b) above and constrained manpower targets. In other words, the goals would represent the eventual aims; the targets would show how far progress could be achieved within the period of the plan towards those goals, given the forecast of future financial constraints.

2.2 Each of the above options was then evaluated to identify the merits and disadvantages of such an approach. The conclusions were as follows:

a) Entirely constrained manpower targets: The advantages of this method are that it maintains a possibly more realistic boundary for the establishment of future manpower requirements. It is simpler and easier to convince political bodies to accept forecasts if they are embedded within likely available financial resources

and the financial restraints can serve as an incentive to developing appropriate and more economical approaches to solving health problems.

The disadvantages of this method are numerous, however. The financial projections may themselves be incorrect leading to unrealistic constraints on manpower planning. Of particular importance is that if financial resources always serve as the boundaries in the manpower plans and the plans are always implemented within these boundaries, then decision-makers may never become aware of the actual health needs - there are no goals which could serve as an imput to the development and revision of allocations of financial resources. In this context, financial constraints on health manpower development may be only apparent, not real; excess allocations could be being made to other sectors at the expense of health yet, without any quantified statement of resource deficits in the health sector, this will remain unknown. If financial constraints are always blindly accepted, then it is very difficult to influence budgetary adjustments.

b) Unconstrained health manpower goals. The advantage of this approach is that it clearly identifies the manpower standards that the health service should aim for in each of its programmes and at each level of the service and indicates the level of expenditure which would be required to achieve these goals. The development of the manpower goals also involves the identification of the standards of service which should be provided. The manpower goals thus represent the desired levels and distribution of manpower and the distribution of finance required to achieve the goals.

The major disadvantage of this method is that since the cost of achieving the manpower goals is, inevitably, likely to exceed available financial resources, the exercise may be considered unrealistic and may not be viewed as useful within the planning process. Moreover, on its own the approach offers little practical guidance as to what actions should be taken within the limits of financial constraints.

c) A combination of manpower goals and targets. This method combines the advantages of the two approaches discussed above. The development of health manpower goals provides a forum for the debate on the standards of service which should be provided and the ideal distribution of health manpower between programmes, services, locations and grades. More importantly, it provides clear indications of the directions that should be followed and of the priority areas for health manpower development. On the other hand, the development of constrained manpower targets, which identify what steps can be taken towards the goals within available financial resources, provides clear and understandable proposals for the senior health decision-makers. Further, this combined method implicitly implies a monitoring both of the original projections and of the progress being made towards the stated goals, an important feature not included in the other approaches. It may also provide a very potent influence on the allocation of health resources.

The disadvantage of this approach is that because it injects more realism into forecasting and since it involves the dual process of goal and target-setting, it requires more extensive analysis and so may be time-consuming.

2.3 In conclusion, it was agreed that method (c) which offered a combination of health manpower goal and target setting, was to be recommended.

3. Health Manpower Budgets

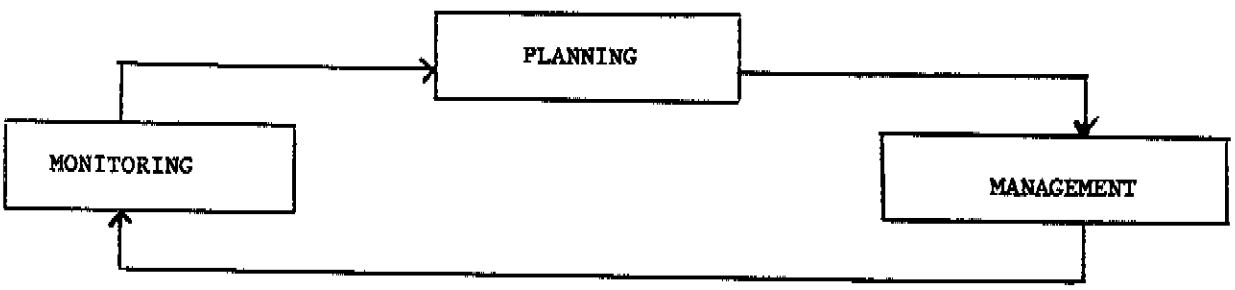
3.1 For short-term health manpower planning (e.g. annual decisions on health manpower manpower expenditure), it was agreed that in order to ensure appropriate progress is made in health manpower development within the framework of long-term policies and targets, ministries of health should clearly establish a separate budget for health manpower. This budget should, explicitly define the way in which manpower expenditure should be distributed in relation to health service developments.

3.2 An issue discussed at length was that concerning the assignment of resources in block form versus the assignment of funds by projects or areas. A paradigm used was the procedures operated by the Public Planning Commission in Zimbabwe which assigns funds annually by comparing past expenditures to present requests and future projections. The identified disadvantage of this approach is that it encourages spending since future allocations depend to some extent on what has been spent in the past. Nor does this approach permit flexibility in spending resources. It was agreed that it is extremely important to re-evaluate expenditures within the context of the long-term health plan and health manpower plans to ensure that historical allocation patterns do not assume more importance than the plans for future distributions and thus severely limit the ability to allocate scarce funds appropriately and effectively. Block assignment of funds can therefore encourage flexibility in spending funds where they are most needed. However, a warning note was added to the effect that block allocations are more difficult to control and care has to be taken to develop procedures to prevent abuse.

III. PERSONNEL ADMINISTRATION

1. Introduction

1.1 In the cycle of planning as shown below, management and monitoring it was agreed that the management of health manpower is a crucial element, but one that is all too often neglected.



1.2 Management calls for the identification of problems, the implementation of feasible solutions and the monitoring of the results. There is no way in which health manpower management can be ignored and it was agreed that countries should set up mechanisms to initiate improvements in their managerial processes.

1.3 Personnel Administration is a vital area within the field of health manpower management. The following components of personnel administration were identified as being of particular importance and some of the problems associated with each were discussed together with a range of possible solutions.

a) Recruitment and Selection
b) Deployment
c) Performance Assessment
d) Career Development
e) Supervision
f) Continuing Education.

2. Recruitment

2.1 The following difficulties were identified in relation to the recruitment position in the health services of the countries represented:

a) With economic development, it is becoming increasingly difficult to attract sufficient recruits for training in health occupations due to competition from other sectors also offering professional training.

b) The level of qualifications of applicants to health service training is falling. In some cases entrants' qualifications fall below the minimum specified entry requirements.

c) The development of primary health care requires a large increase in health service staff working in the rural areas. Yet, because of the attractions of the urban areas, it is difficult to implement the necessary rural deployment of health manpower. Notification of the need to undertake rural postings as part of the career development path within the health service often discourages potential entrants. Even those who may have accepted this condition upon recruitment will reconsider their position when a rural posting faces them and many leave the health service to seek employment elsewhere in the urban centres.

d) In some countries it is particularly difficult to attract women into the health services because the nature of the work is not considered to be suitable and/or because the employment of women is foreign to the culture and traditions of the country.

2.2 The possible solutions identified for the above problems were as follows:

a) The curricula of the health training courses should be reviewed to ensure that both the entrance qualifications and the course contents were appropriate to the skills required for the job. This might indicate the need for the creation of a new health cadre or could lead to the revision of entry requirements for training

b) Entrance examinations could be developed so that applicants, whose qualifications fall below the minimum standards set, yet whose abilities could be such as to enable them to complete training and carry out their job competently, could still, if successful in the examination, be admitted for training.

c) Efforts could be made to recruit students from the rural areas (particularly women) on the understanding that, following their training, they would be deployed to work in the area from which they came. This may help to reduce the urban drain.

d) A campaign to change attitudes regarding the employment of women could be mounted.

3. Deployment

3.1 Problems frequently encountered were:

a) The deployment of staff in rural areas (See also 2.1 c)).

b) The posting of women to remote areas is particularly difficult due to family reasons.

c) If a country develops a high standard of training for its health personnel then this reputation may result in a loss of their trained staff to other countries. This has been found to be the case with public health inspectors trained in Gambia.

d) There are often insufficient and poor living conditions in many locations for health service staff. For example, this applies particularly to the rural areas.

e) If staff are deployed in locations away from their home base, particularly if the posting is to be short-term, then staff suffer financial difficulties in maintaining two households.

f) Conditions of work in some parts of the health services are often poor. For example, there is frequently a lack of transport, shortage of drugs, infrequent or no maintenance of equipment and buildings.

3.2 The possible solutions identified for the deployment difficulties experienced were:

a) Efforts should be made to recruit from rural areas. Trained staff would then return to work in their home locations. Wherever possible, training should be undertaken as close to the home base as possible.

b) Living and working conditions should be examined and minimum standards agreed and implemented.

c) The possibility of providing material incentives to encourage and support deployment in rural reas should be examined. In particular, the possibility of providing financial loans for accommodation or other purposes could be considered.

d) Periodic studies could be carried out to identify and highlight particular problems. However, such studies should be used with caution since they may raise expectations of improvements which cannot immediately be fulfilled.

4. Performance Assessment

4.1 In this area, the particular problems expressed were:

a) A lack of adequate job descriptions.

b) There are often no standardised performance criteria.

c) The workload of health workers at the periphery is often excessive.

d) Supervision is frequently sporadic and unsystematic.

4.2 Possible solutions to the above were given as:

a) A systematic job classification scheme should be initiated making sure that grading structures both within and between cadres appropriately reflect the skills and degree of responsibility at each level. As part of this scheme, explicit and detailed job descriptions should be drawn up for each and every post and standardized across the country. (e.g. the job description for a health inspector at district level should be the same for all districts).

b) Performance assessment systems should be developed, based explicitly on the job descriptions and on a clear understanding of the performance criteria to be used. Assessment of performance should be carried out systematically and there should be a clear understanding as to who is responsible for undertaking the assessments and the frequency of assessments required. Wherever possible, assessment results should be seen to be linked to rewards such as promotion, further training, etc.

c) Clear supervisory structures should be developed and job descriptions should specify exactly the supervisory responsibilities of each post. (See also paragraph 6)

5. Career Development

5.1 The problems identified were:

a) There is often no overall career structure.

b) Mobility from one job to another is frequently limited.

c) The procedures used for promotion decisions are often out-of-date and inappropriate to the requirements of the health service.

5.2 The proposed solutions to the problems in the area of career development were:

a) To develop adequate and appropriate career structures for each cadre of health manpower. This should form part of the process of developing a comprehensive job classification scheme. (See paragraph 4.2 a)).

b) Continuing education should be promoted as contributing to career development.

c) Promotion Boards should be appointed to ensure that promotions are awarded on a systematic and fair basis. Decisions on promotion should take into account the ability of the individual to carry out the duties and responsibilities of the higher post (as specified in the job description) and the results of assessments made of the individual's past performance.

d) All vacancies should be publicised within the health service to ensure that all potential applicants are aware of the opportunities available. Clear specification of the required qualifications and experience for the vacant posts should also be given.

e) Promotion procedures should be explained and detailed for all staff.

6. Supervision

6.1 Some problems of supervision were raised under the heading of 'Performance Assessment', but additional difficulties were identified as:

a) Supervision of peripheral health workers is difficult, particularly in remote areas. This has the added effect of giving these workers an increased sense of isolation.

b) Supervisory responsibilities are often poorly understood and field workers are seldom supported by their supervisors in difficult situations.

6.2 Possible remedies to the above were identified as:

a) There should be in-service training on the responsibilities and duties of all supervisory posts.

b) Supervisors should be instructed in the frequency of visits that should be made to all the staf under his/her responsibility.

c) There should be constructive feedback to all staff on their performance. (See also paragraph 4).

d) The sense of isolation of many of the peripheral health workers could be reduced by such initiatives as newsletters, regular staff meeting, etc.

7. General Recommendations

7.1 The following general recommendations were made regarding the need to improve the health manpower management process:

a) There should be National Working Groups set up to undertake systematic studies of management problems and to recommend and initiate ways of improvement.

b) To complement the national process, regional and/or provincial study teams could be set up to initiate improvements in management at the local levels.

(IV) HEALTH MANPOWER POLICY AND PLAN FORMULATION

1. Introduction

1.1 It was agreed at the outset that health manpower projections must be based firmly and explicitly on the health manpower policies of a country. These, in turn, must be developed from the basis of the declared national health policies.

1.2 On this basis, the Group considered the following areas:

(a) The context and the content of health manpower policies and plans (Paragraph 2).

(b) The sequence of activities required to develop health manpower policies and plans (Paragraph 3).

(c) The policy formulation and planning structures required (Paragraph 4).

1.3 The discussions and recommendations of this Group were found to be particularly pertinent to the participants from Zimbabwe who are currently involved in a major initiative for the development of national health manpower policies and plans.

2. The Context and Content of Health Manpower Policies and Plans

2.1 It was concluded that:

(a) Health manpower policy must be an integral part of policy and strategy for overall health development. Both of these are important constituents of the policy and strategy for National Development.

(b) Health manpower policies should provide statements of a country's broad goals, the priorities among these goals and the main directions to be followed to achieve them.

(c) The health manpower plan must provide statements of:

- objectives and targets
- the current situation
- the policies for individual programmes/services
- the health manpower development programme (i.e., the manpower requirements, plans for health manpower production and management programmes)
- the resources required to implement the manpower programme.

3. The Sequence of Activities

3.1 Turning to the sequence of activities required to develop health manpower policies and plans - bearing in mind that these must be based on overall health policies and plans- the following steps were identified:

(a) FORMULATION AND ACCEPTANCE OF NATIONAL POLICY FOR HEALTH DEVELOPMENT

Phase (I) Preparation

- Formulation of Terms of Reference
- Establishment of Committees and Working Groups

Phase (II) Formulation

- Analysis of current situation
- Problem definition
- Goal formulation
- Main directions to achieve goals
- Implementation strategies
- Requirements for monitoring

Phase (III) Final formulation and submission

(b) FORMULATION OF HEALTH MANPOWER POLICIES AND PLANS

Phase (I) Preparation

- Formulation of Terms of Reference
- Establishment of committees and working groups
- Collection of information

Phase (II) Formulation

- Current health manpower situation analysis
- Problem definition
- Policy formulation
- Objective/target setting
- Formulation of alternative strategies to achieve objectives
- Analysis of resources required:
  i.e., facilities
  manpower
  finance
- Implementation strategies
- Monitoring requirements

Phase (III) Final Formulation and Submission

3.2 The Terms of Reference, as mentioned above, should include:

(a) A statement of who is responsible for the process.
(b) The main and the specific tasks to be undertaken.
(c) A statement of broad problems.
(d) The procedures and the time schedules of the planning process.
(e) The organization for the planning process (i.e., committees, working groups, etc., including the names of all those involved).
(f) The resources required for the planning activities.

4. Structures for Policy Formulation/Planning

4.1 A possible organization for the policy and plan formulation work and decision-making could be as follows:

(a) Steering Committee

Consisting of top level health officials, preferably including the Minister of Health. One member should be the Chairman of the Executive Team. This Committee would need to meet 1 or 2 times per month.

(b) Executive Team

To be composed of senior health officials and representatives of other related/important sectors or constituencies. This team would be responsible for collating Working Group recommendations and submitting alternatives to the Steering Committee for final decision. One person (the Chairman or Secretary, for example) from each Working Group should have a seat on the Executive Team.

(c) Working Groups

To be created to deal with specific policy/planning topics considered important at any time. Membership should inlude experienced field officers from all the sectors involved in the area being considered together with community representatives. Size of membership would vary according to topic, but perhaps the maximum number should be restricted to 30.

(V) HEALTH MANPOWER MONITORING

1. Introduction

1.1 It was agreed that monitoring the implementation of health manpower policies and plans is vitally important to ensure that the required progress is being made towards stated targets, to ensure the effective use of scarce resources and to enable corrective actions to be taken as and when the need is identified. Without monitoring, health decision-makers will never know what is actually happening nor whether policies or plans need revision or adjustment. Monitoring is therefore a crucial element in the planning-management-monitoring cycle.

1.2 Five general areas in relation to the monitoring process were discussed as follows:

(a) the broad principles of monitoring
(b) the different foci of monitoring
(c) those responsible for monitoring
(d) the information required for monitoring
(e) a framework for monitoring

2. The Broad Principles of Monitoring

2.1 Monitoring involves the measurement of change in relation to targets. Therefore:

a) Monitoring has to be undertaken in relation to plans and targets.

b) The definition of objectives and targets within the process of planning will dictate both the areas to be monitored and the particular measures to be used - both quantitative and qualitative.

c) Monitoring should encompass both quantitative assessments of progress and qualitative evaluations of the situation; both are equally important and both can provide valuable and practical insights into the state of the service. For

example, in relation to monitoring the training outputs of a particular health cadre, it is necessary to know not only the numbers being output per annum but also to have an insight into whether the training they have received has adequately prepared them for the duties they are expected to undertake when qualified.

d) The areas to be monitored, the measurements to be used, the procedures to be followed and the definition of who is to be responsible for each part of the monitoring process should be decided and initiated as part of the planning process. (See Section C(v))

3. The Focus of Monitoring

3.1 It was agreed that there were three main elements of the monitoring process which related to the focus of a particular monitoring exercise, namely:

a) The monitoring of RESOURCES
i.e., monitoring of the types of resources devoted to a particular programme or service, the amount and the characteristics of these resources and the distribution of these resources.

An example of resource monitoring would be that of assessing progress in the development of a village health worker programme. Assuming there are agreed plans and policies for the production and distribution of VHW's, then the monitoring process here might cover:

- the total number of trained VHW's working in the field
- the number of villages without VHW's
- the number of additional VHW's that need to be trained to meet plan targets
- the capacity of current VHW training programmes
- the availability of accommodation to house VHW students during training
- the availablility of transport for students during training.

Such an analysis would provide the necessary information to derive assessments of progress in the VHW programme and assessments of the additional resources required if the planned targets are to be achieved.

This focus of monitoring is perhaps the simplest to undertake since information on resources is probably the easiest to obtain and update. (For example, in terms of financial resources, budgetary control systems are usually in existence which can supply valuable inormation for monitoring purposes.) Resource monitoring can also produce relatively rapid results since one is simply measuring the presence, or absence, of particular resource items.

b) The monitoring of ACTIVITIES (sometimes called the monitoring of Processes)
i.e., the monitoring of the types and levels of activities which are being carried out using the resources available.

An example of activity monitoring would be that of measuring the work undertaken within a national nutrition programme. Assuming that there is an agreed policy and plan for the nutrition programme and that this plan has been based on calculations of the nutrition status of the country's children, the actions required to improve the situation and the resources to be devoted to this programme, then the monitoring process here might cover (in addition to resource monitoring):

- the number of children whose nutritional status is above the danger level, by location
- the ages of those children
- the proportion this number represents of the total population
- the numbers of children in each age group attending the feeding posts
- the number of children attending feeding posts who are also the beneficiaries of other care programmes.

Activity monitoring, as can be seen even from this crude example, is more complex and difficult than resource monitoring. It requires continual and accurate recording of activities at the time they are carried out and this data must then be analysed and aggregated in ways appropriate for the monitoring requirements. The timescales for activity monitoring are also longer than those for resource monitoring; the latter is essentially a "snapshot" of one particular point in time whereas activity monitoring must cover a specified period of time.

c) The monitoring of OUTCOMES i.e., the monitoring of the results/consequences of undertaking particular activities with a given set of resources.

An example of outcome monitoring, to continue with the area of nutrition programmes, would be that of attempting to measure the impact of a nutrition programme on the nutritional status of children.

Clearly, both the difficulty and the timescales involved are greater for the monitoring of outcomes than for either resource or activity monitoring. All these aspects, however, are important components of a comprehensive monitoring process.

4. Responsibility for Monitoring

4.1 Monitoring is not simply an information collection exercise. It is intended to lead to actions, either to influence progress towards targets or, if necessary, to adjust plans and targets. Therefore, responsibility for monitoring should be allocated to specified individuals who have the necessary authority to take the actions required.

4.2 The responsibilities and the authority of health service managers clearly varies according to their position within the service - both in terms of their role and the level at which they operate (e.g., at District level, Provincial, Central, etc.). A monitoring process must be designed to reflect these different responsibilities and to ensure that appropriate information is collected and appropriately analysed at each level of the service.

4.3 The monitoring requirements of the service and the specification of those responsible for monitoring should be identified and agreed as an intrinsic part of the planning process.

5. Information Required for Monitoring

5.1 The information required for monitoring should be identified within the context of agreed policies and planning targets and of the different responsibilities of different levels of the health services. Only information which is relevant should be collected. Perhaps an important rule here is to restrict data collection to the minimum required to answer the necessary questions.

5.2 The information required for monitoring should, as far as possible, be designed to allow for its collection as an intrinsic part of the systems delivering health care. This applies particularly to the monitoring of activities and outcomes where a continuous stream of data is required rather than a periodic "snapshot". The level of aggregation of the data collected and the types of analyses carried out may vary according to the needs of different parts and levels of the service.

6. A Framework for Monitoring

6.1 To summarize the conclusions on health manpower monitoring, the following framework was produced to highlight the decisons which need to be taken in the design of a monitoring process for a particulr programme whether in terms of resources, activities and/or outcomes.

HEALTH SERVICE LEVEL	AUTHORITY/ RESPONSIBILITIES AT EACH LEVEL FOR THE PROGRAMME	WHO IS TO BE RESPONSIBLE FOR MONITORING	MONITORING PROCEDURES TO BE USED
e.g. Central Provincial District Health Centre Village			i.e. What information? How is it to be collected? When it it to be collected? Analysis required etc.

6.2 Monitoring framework

a) Title of programme .....
b) Programme policies .....
c) Planning targets .....
d) Objectives of monitoring process .....

ANNEX I

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Annex II

AGENDA

1. Informal Opening of Meeting

2. Election of Chairman, Rapporteur

3. Statement of Objectives of the Meeting

4. Adoption of Agenda

   Introduction to Country Presentations

5. Country Presentations (Part 1)

6. Official Opening of Meeting by the Zimbabwe Minister of Health, Dr The Honourable O.M. Munyaradzi, M.P.

7. Country Presentations (Part 2)

8. Conclusions derived from Country Presentations

9. Context of Health Manpower Projections and Future Activities
   - Health Trends Projections
   - Resource Forecasts/Constraints
   - Personnel Administration
   - Training Administration
   - Health Manpower Policy and Plan Formulation
   - Monitoring

   (Working Groups)

10. Plenary Reports on Future Activities

11. Recommendations for follow-up

12 Official Closing of Meeting by Dr Westwater, Deputy Secretary, Ministry of Health, Harare.

A field visit to enable participants to inspect some of the appropriate health technology developments in Zimbabwe was organized for the afternoon of the third day.

SUMMARY OF COUNTRY EXPERIENCES

Each country represented at the meeting submitted both a written report and a verbal presentation of the work that had been undertaken on health manpower projections in their country.

Both the reports and the presentations provided a wealth of interesting and useful information on the methods and processes used, the results derived and the problems encountered in each country. The following accounts represent only a brief summary of these experiences and cannot do justice to all the work undertaken. It is hoped that it may be possible in the future to publish the results more fully in the form of a set of case studies for wide dissemination among WHO Member States.

The summaries presented here cover the following countries:

		Page
1.	Gambia	34
2.	Hungary	35
3.	Indonesia	37
4.	Mozambique	39
5.	Philippines	41
6.	People's Democratic Republic of Yemen	44
7.	Swaziland	46
8.	Zambia	48
9.	Zimbabwe	50

1. THE GAMBIA

1.1 Background

The Gambia covers an area of 4000 sq. miles and has an estimated population of 6 000 000 with a growth rate of 2.5% p.a. The Gambia became independent from British rule in 1965 and now operates a parliamentary democracy through a multi-party system. There was an attempted coup d'état in 1981.

The structure of the health service consists of a central Directorate, 2 hospitals, 14 health centres (plus 4 under construction), 15 dispensaries and 53 sub-dispensaries. Each health centre provides between 10-15 beds. The sub-dispensaries operate on the basis of trekking teams and have no resident staff.

The plan is to decentralise the health care delivery systems to the point of making village communities responsible for their own health.

1.2 Current Health Manpower Position

Approximately 45% of the annual financial allocations to health are spent on manpower; the largest cadre employed being nurses. There has been a noticeable decline in the proportion of qualified staff employed: in 1974 36% of all health staff were qualified, by 1980 this proportion had reduced to 24%. The overall rate of increase in health manpower has also declined from an average of 13% p.a. in the late 1970s to 3.5% by the early 1980s, whilst 1982/83 has shown a 0% growth. Although it is hoped that this latter standstill is only transitory, financial stringencies in the health sector are unlikely to radically improve in the foreseeable future and The Gambia is faced with the enormous challenge of trying to expand its health services to underserved rural areas with little financial support.

1.3 Focus of the Manpower Projections

The Gambia concentrated the first phase of its manpower projections on nursing staff which is both the largest cadre of health manpower and one which is key to the development of primary health care. The nursing cadre examined included SRNs, SENs and Community Health Nurses (CHNs).

The nursing projections were carried out in the context of The Gambia's Second National Development Plan which aims at expanding rural health services within the financial constraints of a maximum growth in manpower expenditure of 3.5% p.a.

1.4 Approach and Methods Used

An evaluation of the situation in The Gambia revealed that the most appropriate basis for the projection of nursing requirements was that of service targets since it was clear that the availability of resources was the key determinant of the types of services which could be rendered. The projections for the nursing cadres to the year 2000 were all based on projected annual budgetary allocations.

Projections of nursing supply were based on the stock-and-flow method taking account of attrition and course drop-out rates.

1.5 Results Obtained

a) SRNs: The results of the projections showed clearly that, simply to keep pace with the population increase and therefore to provide the same level of service as is being delivered now, the funded establishment for SRNs would have to be increased by 64% by the year 2000. When the high level of current vacancies was taken into account (a total of 35% of the existing funded establishments) it was found that the current output of newly-qualified staff from the training schools would not be sufficient to meet the year 2000 targets. Only if there were urgent improvements to working conditions, thereby hopefully reducing attrition, and an improvement of the success rate of trainees, could the yearly output match the long-term requirements. In terms of the

period of the Second National Development Plan (1981/82 - 1985/86), the results of the projections showed that the 1985/86 SRN targets could not be met given current training outputs.

b) SENs: At present this cadre was found to be approximately 50% below the funded establishment and, given the current attrition rates and school outputs, the funded establishment would not be filled until 1989. The current training capacity for SENs was found to be insufficient to meet the targets for the year 2000 (i.e. to keep pace with the population expansion), although a new training school is hoped to be in operation during the period 1989-2000 which should be able to cater for the increased requirements.

c) CHNs: CHNs have been involved in the running of both static and mobile clinics in rural Gambia. With the development of the PHC programme, CHNs will have an important additional role as supervisors of the village health workers and traditional birth attendants. To provide the level of services required under the MCH and PHC plans for 1985/86, the numbers of CHNs will have to increase from 78 - 118 (i.e. by 51%). From 1985/86 to the year 2000, to keep pace with population growth and to expand village coverage, the total number of CHNs will have to be doubled. The current output of CHNs will not be able to meet the targets either for 1985/86 or, in the longer term, for the year 2000. Changes will either have to be made to the frequency of school intakes or means will have to be found of increasing the capacity of each intake.

1.6 Value of the Exercise

The projections of the requirements and supply of the 3 categories of nurses showed that for none of these cadres can the projected supply meet the requirements by the end of the current National Plan period. Thus, by using the financial ceilings of the plan, it was seen that even the very first objective of maintaining the existing standards of service was unattainable unless other provisions are made, let alone increasing the manpower levels to staff new health facilities.

As a result of the projections exercise, senior health officials now have a document which quantifies the manpower implications of current health and funding policies and which highlights the problems to be faced in achieving stated targets. Identification of these problems has already influenced the budgetary allocations and has led to a search for alternative solutions to other difficulties. For example, an attrition survey has been undertaken as a first step in an attempt to reduce losses of qualified staff and the curricula for CHN training is being reviewed.

2. HUNGARY

2.1 Background

Hungary covers an area of 93,000 sq. kms. and has a population of 10.7 million of which 2 million live in Budapest. Population growth has been decelerating over the last 7 years due to both a decrease in the birth rate and increasing mortality. The proportion of the over 60 age group is increasing with a resulting escalation in the need for social care. In addition, increasing urbanization, changes in lifestyle (due to economic, technical and environmental changes) and scientific developments are all affecting the demands on the health services. Health care has been given free of charge since 1975.

2.2 Current Health Manpower Position

There are currently 25.1 doctors per 10,000 population in Hungary. From 1960-1980, the number of doctors has nearly doubled. In terms of other health cadres, there are 3.9 pharmacists and 96.7 paramedical staff (i.e., nurses, technicians, etc.) per 10,000 population. There are approximately 4 nurses to every doctor in the health services.

2.3 Focus of the Manpower Projections

The work presented to the meeting focussed almost exclusively on doctors although this was intended as an introduction and example of the approach used in Hungary which, as shown in the written report, has covered all cadres of trained health manpower. Exceedingly thorough and comprehensive analyses of the country's requirements for and projected supply of, health manpower have been carried out.

2.4 Approach and Methods Used

A Projection Committee was appointed by the Minister of Health consisting of representatives of University Departments of Social Medicine, Planning Institutes, etc. From this main Committee, seven Sub-committees were formed, each with a separate projection task. One of these Sub-committees was allocated responsibility for health manpower projections.

The projections of health manpower requirements took into account projected changes in the demands for health care (see 2.1 above) and the likely provision of future health services both to cope with changes in population structure and distribution and for the development of new facilities and services. In addition, the requirements took into account the projected division of labour between different health cadres, the organization of duties, the number of working hours available, and the likely shift patterns.

The projections of health manpower supply were based on the stock-and-flow method, taking into account:

- the age structure of the current workforce
- the proportion of males and females
- mortality amongst health personnel
- attrition rates/changes in specialty
- those continuing work after the normal retirement age.

2.5 The Results Obtained

A summary of the results for the medical profession were presented to the meeting as an example of the work undertaken. These are shown below:

(a) Total medical requirement for the year 2000 = 31,900

(b) Total medical training capacity to the year 2000 = 20,000

(c) Supply:

Current number of active doctors	= 26,500	
Projected losses by year 2000	= -8,600	
Balance of current stock remaining	=	17,900
Training output required (31,900 - 17,900)	= 14,000	
Assume 7% drop-out during training	= +1,120	
Assume 5.2% leave work	= + 840	
Total required intake to medical schools to the year 2000.		= 15,960

From the above calculations, it was found that medical training capacity is 25% greater than that required.

Similar projections were undertaken for other health cadres to estimate the quantitative supply requirements. The qualitative aspects of training - i.e., the relevance of the training programmes to future needs of the health service - were evaluated out as a separate exercise.

2.6 Value of the Exercise

The results of the work of the Health Manpower Projection Committee have been widely circulated and discussed both within and outside the health sector with such bodies as the Ministries of Economic Affairs and Education, the Academy of Science and with representatives from private industry. The final report has been accepted by the Minister of Health and has now been developed into working papers (i.e., plans of action) whose recommendations are being followed by the appropriate Divisions of the Ministry of Health. To follow up the medical projection example given earlier, the spare capacity of the medical schools is to be reduced by 10% from 1983 and consideration is being given to utilizing some further excess capacity for the training of students from overseas. Work is now continuing with the drawing up of further detailed manpower plans for the next 5 years including the development of evaluation and monitoring programmes.

3. INDONESIA

3.1 Background

In 1982 the population of Indonesia was 150 million and from 1971 to 1980, showed a growth rate of 2.3% p.a. Despite great progress in its development programme, the health status of much of the population, which is spread across the total of 1.9 million sq. kms., remains below the standard that the Government desires. For example, infant mortality is still approximately 98 per 1,000 live births with 33% of children under 5 suffering from nutritional disorders and 30-70% of pregnant women suffering from nutritional anaemia.

The main objectives of the long-term health development programme are to increase the ability of the community to help themselves, to improve the quality of the environment, to improve nutritional status, to decrease morbidity and mortality and to develop family welfare. A commitment to achieve health for all by the year 2000 is regarded as an objective for economic development and not merely as one of the means of attaining it.

The national health manpower planning exercise has been based firmly in the context of the long-term health development plan. The manpower projections are closely linked into the whole planning process with each projection related, explicitly, to statements of health policy and detailed health objectives.

3.2 Focus of the Manpower Projections

The projections of health manpower requirements and supply covered all health manpower in the country, both Government and private, up to the year 2000. 18 categories of health manpower were used for the projections as follows:

Medical Specialists	Midwives
General Doctors	Sanitarians
Dentists	Laboratory Staff
Pharmacists	Health Technicians
Nutritionists	Dental Technicians
Public Health Graduates	Nutrition Assistants
Environmental Health Graduates	Assistant Pharmacists
Other Health Graduates	Other Technical Staff
Nurses	Other Staff

The actual projections of health manpower requirements were undertaken by 13 different working groups each covering one segment of the health services as follows:

1. Health Centres	8. Management and Supervision
2. Hospitals and Laboratories	9. Physical Structure and Equipment
3. Nutrition	10. Education and Training
4. Environmental Health	11. Research and Development
5. Communicable Diseases	12. Information
6. Occupational Health	13. Health Education
7. Drugs	

3.3 Approach and Methods Used

National health targets for the year 2000 were announced in a National Health Policy and Strategy document published by the Minister of Health in 1982. Within this context, the participants of each working group set service targets in order to meet these national health targets. From these, two different methods were used to project manpower requirements: where the health manpower required was determined wholly or mainly by health facilities provided, then the projected requirement was calculated from a standard staffing schedule for each facility; where the health manpower was determined by the workload of delivering the target service, then the projected requirement was calculated according to the number of "cases" one worker can deal with, multiplied by the total number of cases expected.

The working groups could use either method as preferred and were given proformas to record the steps of their calculations. Both the questions asked on the proformas and the sequence of those questions was essential to the logical progression from health targets to manpower projections and to maintaining the vital integration of manpower planning with the overall planning process. The following gives a brief example of the method used in the case of a workload-determined manpower requirement:

MANPOWER CALCULATIONS

1. PROGRAMME NAME:	Health Service of Paskesmas
2. OVERALL AIM OF PROGRAMME:	To strengthen health services delivered by Paskesmas in terms of quality, distributiona nd accessability, with increased public participation.
3. SPECIFIC OBJECTIVES AND BASIC STRATEGY:	
(a) OBJECTIVE NO. 1:	Infant mortality reduced to 45/1,000 live births
STRATEGY:	Provide pre-natal care to pregnant women.
(etc.)	
4. SELECTED CRITICAL ACTION:	Consultation with pregnant woman involving physical examination and health education.
5. UNIT OF DEMAND:	Pregnant woman
6. FUTURE DEMAND:	(No. of pregnant women)
7. FREQUENCY OF CRITICAL ACTION:	3 times for normal pregnancy
8. VOLUME OF WORK:	(Question 6 x Question 7)
9. SELECTED TYPE OF STAFF:	Bidan
10. EXPECTED TIME TO COMPLETE CRITICAL ACTION:	(number of minutes)
11. FUTURE UTILIZATION OF STAFF TIME: FRACTION OF NORMAL WORKING DAY SPENT ON:	
(a) PERFORMING CRITICAL ACTION/DELIVERING SERVICE:	0.33
(b) PERFORMING OTHER ACTIVITIES NECESSARY TO DELIVER SERVICE:	0.25
(c) WAITING/PRIVATE WORK, ETC.	1.00
12. FUTURE DAILY VOLUME OF WORK:	(Expected working hours/day x 11(a) above)
13. EXPECTED WORKING DAYS PER YEAR:	280
14. FUTURE ANNUAL VOLUME OF WORK:	(Question 12 x Question 13)
15. NUMBER OF SELECTED STAFF REQUIRED:	(Question 8 divided by Question 14)

N.B. The above is an abbreviated version of the proformas for example only - NOT a complete set. In particular, the original proformas, wherever an assumption is made about a future activity, also record corresponding data about the current situation as a "check" on the realism of the projections.

The projected supply of health manpower was calculated in two parts:
(a) the number of present staff who will remain in the service up to the year 2000, allowing for resignations and retirements
(b) the number of staff yet to be recruited, allowing for resignations after recruitment. Training capacity was taken as the maximum thought to be possible.

3.4 The Results Obtained

Each of the 13 Working Groups calculated their manpower requirements, using the proformas, for each of the 18 staff categories needed to deliver the planned service in the year 2000. At this time, they had available to them data on the total health manpower supply in each of the staff categories and general guidance on the total Government health resources likely to be available. From the working group results, 4 alternative national projections were prepared; one showing the implications of only increasing service delivery pro-rata the population increase (the baseline projection), the others testing out the implications of different programme priorities within progressively lower resource constraints. Using the proformas, it was relatively simple to recalculate the results based on different sets of assumptions.

The Working Group projections in total showed a manpower requirement for the year 2000 considerably in excess of the projected manpower supply. From the alternative national projections produced, it was found that the manpower supply projections for the year 2000 roughly matched a requirement projection which was 25% lower than the Working Group results.

3.5 Value of the Exercisee

The benefits of the exercise can be divided into two elements; those relating to the process which was adopted and those relating to the results.

The process forced those involved in the Working Groups to follow a logical sequence in defining future manpower requirements and to make all assumptions about the future roles, utilization and deployment, etc., of manpower explicit. Moreover, the process of having to reach agreement both within each Working Group, and between Working Groups where issues overlapped, enabled a number of misconceptions and divergent views to be aired and discussed, thus leading to a greater understanding of manpower and service issues and more coherent and consistent plans. Moreover, the exercise stimulated research into various aspects of manpower deployment and utilization (for example, one study was mounted to assess the current proportion of time spent by different categories of manpower on direct services, supporting activities and waiting/private work) and has highlighted the need for certain vital information relevant to the planning process.

The results of the exercise have recently been submitted to the Minister of Health for approval. It is anticpated that the results should provide a clear policy framework for the production and deployment of health workers in the future within which training institutions, personnel administration, etc., can plan and schedule their activities.

Overall, the most important factor in the practical success of the Indonesian national manpower planning exercise has been the administrative framework within which it has been carried out. Health manpower projections are viewed as an integral part of health manpower planning which, in turn, is seen as an integral part of national planning for health development in the country. As was pointed out at the meeting, the whole process takes time to develop and consolidate, but the benefits of developing and adopting systematic planning processes were made clear in this presentation.

4. MOZAMBIQUE

4.1 Background

Mozambique has 12 million inhabitants and occupies an area of 800 sq. kms. It achieved its Independence from Portuguese colonial rule in 1975. Mozambique's epidemiological profile is characteristic of developing countries with a high rate of morbidity and mortality caused by preventable infections and parasitic diseases.

The health service was nationalized one month after independence and, from 1977, all services have been provided free of charge. The structure of the health services is hierarchical with referral taking place as necessary through the levels; from health posts and health centres at the periphery, through rural and general hospitals, to central and specialized hospitals. There are currently 188 health posts and 281 health centres providing a total of 5,783 beds; 26 rural or general hospitals and 7 provincial hospitals providing a further 3,735 beds; 3 central hospitals with 2,445 beds and 3 psychiatric hospitals with a total of 1,000 beds.

The health manpower projections were carried out in the context of the financial allocations stipulated by the National Plan Commission and within the framework of the General Plan of the Country for the decade 1980-1990, (known as the Indicative Prospective Plan - I.P.P.).

4.2 Current Health Manpower Situation

In 1981, the Ministry of Health employed a total of 12,830 personnel, an increase of 4.6% on the previous year. Included in this total, the following main professional cadres are employed:

PROFESSIONAL CATEGORY	NO. EMPLOYED (1981)	RATE/POPULATION
Doctors	323	1 : 34,000
Nurses	2,134	1 : 5,800
Midwives	457	1 : 25,300
Preventive Medicine & Environmental Hygiene Personnel	494	1 : 25,100
Medical Assistants	170	1 : 71,100

4.3 Focus of the Manpower Projections

The manpower projections were undertaken for all the professional health cadres which constitute the health teams for different units at each of the referral levels of the service. Projections were based on plans for new health facilities and on projected in-patient, out-patient, and primary health care workloads for the period 1980-1990.

4.4 Approach and Methods Used

The Health Manpower Planning Section within the Health Planning Department of the Ministry of Health was responsible for carrying out the manpower projections with information assistance from the Health Statistics Division. The projection of health manpower requirements was carried out on the basis of staffing schedules for each type of health unit and covered three levels of projection: a baseline projection, an optimistic and a pessimistic. These three levels of projection of staffing standards were applied to different projections of the number of health units of each type which could be in operation during the decade to test out the implications of alternative plans.

Each of the projections of manpower requirement were compared with projections of potential manpower supply which were based on estimates of current stock remaining in service together with projected training outputs, taking account of course of drop-out rates for the different cadres.

Each of the alternative projections were fully costed in terms of total wage bills, unit training costs, costs of expanding the physical capacity of training institutions and the costs of increasing the numbers of teachers and instructors.

4.5 Results Obtained

The results derived from the alternative health manpower projections were discussed and evaluated with the National Planning Commission. The alternative which fell within the financial constraints of the General Plan of the Country was selected and agreed for implementation.

As a result of the projections exercise, measures are now being taken to expand health training capacities including the development of decentralised training facilities at provincial levels which would provide elementary training, particularly for nurses and midwives, making use of the potential for practical experience that can be offered by local health units.

4.6 Value of the Exercise

The primary value of the manpower projections exercise, even at this initial phase of the total manpower development effort, has been the development of an agreed plan of action which identifies both the manpower and the financial implications of achieving the country's health targets. The process of establishing staffing schedules for the various health units has begun to identify the key assumptions and variables affecting the requirements for different health cadres. The entire exercise has also highlighted problem areas both in terms of the planning process (e.g. the availability of information required) and in terms of the manpower system (e.g. training requirements, the level of attrition, etc.). In addition to the initiatives now being taken to develop new forms of health training alongside that already provided in the central institutions, the need to try and improve the retention and management of health workers has been identified. Steps are now being taken to develop appropriate and improved career structures and to clearly define the roles and responsibilities of staff at each level of the service. In addition, a new wages policy is being developed to provide appropriate performance incentives with the objective of reducing labour turnover.

5. PHILIPPINES

5.1 Background

The Philippine archipelago consists of 7107 islands scattered over an area of approximately 520 700 square miles. Its population in 1980 was about 48 million with an average annual growth rate of 2.4%. Communicable diseases continue to be a major problem and there are areas where malaria and schistosomiasis are endemic. Related problems are poor environmental sanitation and malnutrition amongst children and pregnant women.

Health services in the Philippines are provided by both government and private sectors through hospitals, health centres and clinics. The rural population is served by a network of 1991 rural health units and 7099 satellite barangay (village) health stations.

In line with its commitment to HFA/2000, the Ministry of Health of the Philippines conducted a 5-year project on strengthening rural health services (1975-1979). This project identified rural health midwives and public health nurses as the key manpower categories in the provision of primary health care and the Ministry of Health established norms for the provision of these cadres of one midwife per 5000 population and one nurse per 20 000. However, there has been no validation of these staffing norms, nor of the role and functions of the PHC nursing personnel in PHC in the context of HFA/2000. A study of the expected future activities of PHC personnel was viewed as essential to the proper planning of the numbers required, their distribution and their training. In this light, the current manpower projections exercise was carried out using, in order to test its feasibility and applicability, a modified Delphi methodology.

5.2 Principles of the Delphi Method

The Delphi method is based upon the use of "experts" in the area being studied to collect opinions on current health needs and services and on future developments. It is a method which has been used, in the health field, where an urgent planning exercise

is required but where routine data may be unavailable or too inaccurate to use and where a survey to collect the data would take too long to complete and would prove excessively expensive.

In its "pure" form, the Delphi method involves meetings between the experts where, through discussion, attempts are made to reach consensus on the issues in question. In the Philippines the method was modified and individual questionnaires were administered by interview to the selected experts. This modification was made because of the relative length and complexity of the information and opinions being sought and because some of the respondents could neither read nor write. Moreover, the social traditions of the Philippines, where personal relationships are highly valued, made the interview technique particularly desirable.

All projections are speculations; the Delphi method does not differ from other projection methodologies in this aspect. Its aim is to make use of local knowledge and experience where official data bases are poor and where other ways of collecting the required information are costly and time-consuming. It can be a particularly powerful tool in situations where there is rapid change and where simple trend extrapolation methods would be of little help in predicting the future.

5.3 Objectives of the Project

The overall objective was to test the feasibility of the Delphi method in predicting nursing manpower requirements for rural health services for the next five years. Within this, the specific objectives were:

a) Based on estimates given by experts, to identify the morbidity pattern for the ensuing 5 years and to compare these estimates with officially reported data.
b) To identify the factors that influenced the use of the method.
c) Based on the estimates made, to identify the levels of nursing manpower required (i.e. public health nurses and rural health midwives) to meet the identified health problems.

The project was carried out in two typical Philippine settlements: a coastal farming and fishing community and an inland farming community. Depending upon the acceptance by the Government of the results of the project, consideration may be given to extending the study across a larger part of the country.

5.4 Approach and Methods used

The method for projecting health manpower in the Philippines entailed:

a) the projection of demand for health care arising from the leading causes of morbidity

b) determination of the manhours required to satisfy demands for health care

c) determination of the available, effective manhours

d) determination of the mismatch between manpower demand and supply.

A total of 73 experts (35 from one community, 38 from the second) were selected as respondents and included representatives from both the government and non-governmental sectors. There were two groups of experts: a health group which included doctors, nurses, midwives and traditional and village health workers; a non-health group including local government officials at municipal and village levels, representatives of other government agencies and of civic/religious groups in the community. The experts were selected on the basis of their frequency of contact with the community through the provision of services, the degree of their dialogue with the people and/or close observation of their environment and way of life, and their willingness to participate in the study. The experts selected were rated to categorize them into excellent, good or fair. This rating was based on their weighted scores in the following areas: residence, delivery of services, knowledge about the community and involvement in research/studies on the community.

A total of seven project staff were used to administer the questionnaires by interview in the two communities. The data collected covered:

a) Quantitative data on the demand and need for health care in the next 5 years including indices of births, deaths and disease and the proportions of people who will seek care.

b) Qualitative data on the current performance of government health services, including the coverage, quality, effectiveness and efficacy of facilities and health personnel and expected changes in the activities of nursing staff.

c) Data on community factors in health development such as the extent of participation of indigenous/traditional health workers, the capabilities of the community for self-care and the attitudes towards health services.

From the above data, baseline, optimistic and pessimistic projections of the number of health seekers within the next 5 years, due to the identified leading causes of morbidity, were carried out based on (a) the estimates of all experts, (b) the estimates of experts in the health and non-health government sectors and (c) officially reported morbidity.

Determination of the manhours required to provide services to projected health care seekers was based on:

a) the activities involved, i.e., clinic consultations and home visits, and the component tasks such as patient assessment, administering treatment, etc.

b) the average time for carrying out the activity for each type of disease and per patient

c) the average frequency of activity per patient per disease during the year

d) the nursing staff (PHN or RHM) who will be involved in each activity

e) the size of the caseload of the PHN and RHM.

Determination of available man-hours (supply) was based on:

a) the number of available working days per staff per year

b) the proportion of time spent on direct and indirect/support services.

5.5 Results Obtained

The weighted average of the estimates given by all experts for the number of births, deaths from tuberculosis and deaths from cardiovascular diseases were very close to the officially reported figures despite great divergence of individual estimates. In other cases, such as deaths from diarrhoea, the experts' estimates of occurrence conflicted with reported incidence. It appeared that experts tended to give very good estimates for events which are impressed on them because of either the suddenness of the occurrence (e.g., CVA's) or because of its chronic nature (e.g., TB). The results also showed that there seemed to be no association between the level of expert (i.e., as rated) and the accuracy of the estimates given. Nor did there seem to be any relationship between the sector to which the experts belonged and the validity of the estimates given. In particular, it appeared that the "community" experts were often closer in their esimates of reported cases than the health workers.

In terms of projected numbers of public health nurses and rural health midwives, forecasts based solely on extrapolations of reported morbidity at the rural health units indicated that no additional manpower would be required. On the other hand, the experts estimated that demands for services were likely to increase over the next 5 years and that there would therefore be an increase in requirements for both manpower categories, particularly for RHMs. Neither projection at this stage can be said to be 'right' or 'wrong'; what the differences in the projections do highlight, however, is the

importance of monitoring the number of seekers to the rural health units in the short term. Only in this way can the assumptions used in the projections be tested and modified, as necessary, to more closely reflect changes in demand.

5.6 Value of the Exercise

The benefits of the project have been several. Firstly, the method itself has been leant credence by the fact that whilst the estimates of the experts varied, the overall, processed values approximated closely to that of reported morbidity and mortality. Secondly, there is now a recognition of the importance of the opinions of lay, non-health members of the community particularly since these respondents often proved more accurate in their estimates than other experts. There has also been a development of competence and confidence in the use of the Delphi method for projecting health manpower requirements and, finally, considerable insight has been gained into the variables affecting future demand for health manpower.

It is planned to continue the work by monitoring morbidity, mortality and health service utilization to compare actual incidence with the projections made. This monitoring will be carried out on a sample basis,with selected families recording occurrences of illnesses and deaths and the use/non-use of health services. At the same time, patient activity data will be collected from both government and private hospitals and clinics. In addition, a study will be conducted to validate the estimates of nursing time spent on different activities.

The results of the current study and the results of the subsequent monitoring exercises will be disseminated to groups involved in the delivery of health services, in health training, in research, policy formulation and health and economic planning. It is hoped that the results of this dissemination will include the acceptance of the usefulness and validity of the Delphi method, an extension of the coverage of the country in projecting health manpower requirements and the use ofthe results by local and provincial health officials in their plans for the future provision of rural nursing personnel.

6. The People's Democratic Republic of Yemen (PDRY)

6.1 Background

PDRY extends over an area of approximately 333 000 sq. kms. with a 1982 population of approximately 1.9 million and a growth rate estimated at 2.6% p.a. Nearly 48% of the population are under 14 years of age. The country achieved independence from Britain in 1967 and now operates a socialist economy under the control of a Central Public Sector.

The Ministry of Public Health is responsible for the provision of health services, free of charge, to all members of the community; there is no private health sector. The health service structure is hierarchical and includes 4 teaching hospitals, 9 Governorate hospitals (60+ beds), 14 rural hospitals (40-60 beds), 20 health centres (20-30 beds each) and 256 health units. At village level, it is planned to develop a system of health care based on voluntary health guides and trained birth attendants supported by primary health care workers and the staff of local primary health care units.

Shortly after Independence, the Government launched its first National Development Plan and the country is now in its second 5-year plan period. In 1978, in collaboration with WHO, PDRY conducted a National Health Programming exercise which identified ten priority programmes of which by far the most important was PHC. By 1980, the Ministry of Health had formulated a policy statement, objectives, strategies and a plan of action for achieving HFA/2000.

6.2 Current Health Manpower Situation

Immediately after Independence, due partly to an exodus of technical and skilled manpower, PDRY was faced with an acute shortage of health manpower of all categories. As a first step to rectify the situation, an Institute of Health Manpower Development was established, with international aid, to conduct courses in most of the health

fields. During the first phase of its operation from 1970-1975, a total of 868 students completed training, a number which far exceeded the target figure of 590. Activities of the second phase started in 1976 with 14 different courses and a total number of graduates to December 1981 of 2,984. A Faculty of Medicine was established in 1975 at the University of Aden and the first batch of 51 students graduated in 1982.

The current professional staffing of the Ministry of Public Health is shown in the table below:

PROFESSIONAL CATEGORY	NUMBER EMPLOYED (1982)	RATE: POPULATION
Doctors	147	1 : 13,000
Dentists	6	1 : 325,000
Pharmacists	7	1 : 279,000
Professional Nurses	222	1 : 9,000
Community Nurse/Midwives	169	1 : 12,000
Assistant Nurss	1,565	1 : 1,000
Medical Assistants	393	1 : 5,000
Public Health Personnel	145	1 : 13,000
Other Technicians	535	1 : 4,000
Health Guides	60	1 : 33,000
TBA's	105	1 : 19,000

Of particular interest to other participants were the measures taken by the Ministry of Public Health in PDRY to overcome the difficulties experienced, as in other developing countries, in the deployment of health personnel to rural areas. PDRY operates a system of rural recruitment for health training and a compulsory period of work at the home base following training. In addition, to prevent migration from health, health service pay has been improved to a level where it is now competitive with other sectors. Also, financial incentives, representing approximately 20-60% of basic salary, are awarded for rural postings. Finally, PDRY faces a cultural difficulty in the recruitment of females, therefore a system of compulsory health service work has been established for women.

6.3 Focus of the Manpower Projections

The work undertaken to project health manpower requirements and supply covered all cadres of health manpower. The projections were carried out individually for each of 22 categories of manpower in each of the 6 Governorates, for the teaching hospital and for central headquarters. The projections extend to the year 2000 and include targets for each 5-year period from 1985. The projections for physicians were carried out separately for the major specialties and for general practitioners.

6.4 Approach and Methods Used

Following the attendance of representatives from PDRY at the first meeting on health manpower projections in 1981, a National Workshop on Health Manpower Planning was held at which a programme of work for health manpower development was drawn up. A 10-member committee was established to undertake the projections with representatives of the health service, other relevant ministries and consumers. The committee itself collected the necessary information on the present utilization and distribution of resources (facilities, services and manpower) and the manpower projections they developed were based firmly on the long and short-term policies in the health and other related sectors.

Health manpower requirements were projected on the basis of service targets. The methods of projection used were those of population ratios and facility staffing schedules as appropriate to the service in question.

Health manpower supply was projected on the basis of existing training policies and capacities taking into account average course drop-out and service attrition rates.

6.5 The Results Obtained

The projections of health manpower requirements and supply highlighted some severe mismatches both in the year 2000 and in the five-year intervals up to that date. Particularly serious shortages were identified for the categories of primary health care workers, health guides and TBA's - all of which are new health cadres for which there is a large and immediate need. For other cadres, such as the professional nurse/midwife, a large deficit in the first 5 years to improve standards to the levels felt appropriate was shown to be followed by smaller surpluses - given the assumption of no changes in training outputs.

On the basis of the projections, recommendations have been made for urgent action to support the production of PHC workers and to adjust the capacity of professional nurse and midwifery training. For those cadres where supply was shown to exceed demand throughout the projection period, it has been proposed that training intakes should be restricted to alternate years rather than annually as at present. Other recommendations have included the need to strengthen and improve the managerial processes in the health sector through the employment of non-medical university graduates as administrators and through the training of doctors as public health specialists.

6.6 Value of the Exercise

As stated above, the results of the projections identified the need to adjust (sometimes radically) the output of trained health manpower. Already the results have influenced on the training intakes for some cadres such as, radiographers and pharmacists. In addition, the results of the projections will be fed into the national health programming exercise and are likely to have an influence on priorities for financial allocations.

The process of undertaking the manpower projections exercise also provided some salutory insights. The collection of information on manpower and facilities took a total of 5 months for the projection committee to complete. In many cases, this field survey revealed large discrepancies with the records held in the Ministry of Public Health, thus identifying a need to improve health information systems. Finally, the exercise has emphasized the need to consider manpower projections not as a once-only effort, but as an area where constant monitoring is required to identify the need for revisions and refinements.

7. SWAZILAND

7.1 Background

Swaziland is a land-locked country and, in terms of both area and population, small one. It covers a total of 17,364 sq. kms. with a population close to 600,000 which, since the time of the last census in 1976, shows an increase of nearly 16%. Approximately 48% of the population is under the age of 15 and about 85% live in rural areas deriving their income primarily from subsistence agriculture. General health conditions in Swaziland are poor and well below those of other countries of the same income level.

Health services in Swaziland are provided from 6 major sources: government personal health services (preventive and curative); government non-personal health services; voluntary personal health services; industrial services; private practitioners and traditional practitioners. The government health facilities include 6 general hospitals, 2 specialist hospitals for TB and Psychiatry, 34 rural clinics and health centres and 7 urban-based public health units. A total of 937 beds are provided in government facilities a number which represents approximately 62% of the total provision in the country.

A Health Planning Unit (HPU) within the Ministry of Health was formed approximately 12 months ago. From 1980-1982, there had been no health planning capacity within the Ministry. The HPU is responsible for all health planning activities, i.e.the

preparation of national health policy statements, the preparation of the health sector component of the National Five Year Development Plan, health facilities planning, capital and recurrent budgeting and health manpower planning.

7.2 Current Health Manpower Situation

Less than 50% of the annual recurrent health budget is currently spent on health manpower and there is concern about the low levels and standards of staffing within the government health sector.

A large proportion of Swaziland's total health manpower works outside the government Sector; for example, more than one third of all doctors and nearly one fith of all nurses work in mission, private and industrial facilities.

Although figures are not currently available on the numbers of different categories of health manpower actually employed in the Government health service, the establishments for 1982 were as follows:

CATEGORY	Establishment (1982)
Doctors	31
Dentists	2
Pharmacists	4
Senior Health Officials	7
Qualified Nurses*	391
Nursing Assistants	96
Health Inspectors	12
Health Assistants	102
Technicians/Assistants	42
Rural Health Motivators	400

* Includes matrons at Headquarters, Hospitals and Public Health Units.

Swaziland has three health manpower training institutions. There is now an Institute of Health Sciences which trains nurses, health inspectors and dental technicians and there are two mission schools training nurses and nursing assistants. All other professional staff are either sent abroad for training or are recruited, already trained, from outside the country.

7.3 Plans for Future Work on Health Manpower

The HPU is anticipating commencing work on the development of a health manpower plan for Swaziland early in 1983. Initial plans for this work include:

a) A manpower survey of all government and mission health services to collect data on the number of employees in each cadre, their age, sex, function and length of service. Data on leavers and new graduates will also be collected.

b) The collection of data on population growth, current health facilities and planned services.

c) A survey of international experience in the development of health manpower policies and plans.

d) The development of standard staffing schedules for all existing and planned health facilities.

Already, certain problem areas within the manpower system have been identified and solutions to these difficulties will also be sought within the manpower development process:

a) There are inadequate career structures in several of the health professions

b) Supervisory structures are currently ill-defined

c) Rural deployment incentives need to be considered

d) The utilization of existing manpower requires investigation to ensure the most effective use of skills and qualifications

e) There is a drain of health manpower from the government services both to the private sector and to outside the country because of the attraction of higher salaries.

In addition, participants from other countries were particularly interested to learn that Swaziland soon intends to appoint a monitoring officer to the Ministry of Health. The need for the development of monitoring systems and for their integration with the health planning process had been stressed throughout the meeting. This need has been anticipated by Swaziland very early in the development of their National Health Planning exercise.

8. ZAMBIA

8.1 Background

Zambia covers an area of some 753 000 sq. km. with a population of approximately 6 million. Annual expenditure on health is now at a level above that of the vast majority of less developed countries, but the distribution of the available resources has not been even. For example, Lusaka and the urban copperbelt, with only 30% of the population, consume 60% of the national health expenditure.

The structure of health services in Zambia follows a pattern of community health workers as the first contacts at village level, through rural health centres (small, large and zonal), to district, general and finally, central and special hospitals.

Zambia fully accepts that an adequate provision of trained personnel and their effective deployment are crucial for the provision of better health services and for the development of PHC. PHC is a clear priority in Zambia although not to the neglect of health services further up the referral chain which are essential to the support of PHC.

The report presented to the meeting was based on manpower projections work carried out in Zambia a couple of years earlier.

8.2 Current Health Manpower Situation

In 1964, when the Rhodesian Federation broke up, Zambia (as Northern Rhodesia) had 500 doctors of which only two were Zambians. None of the foreign doctors renewed their contracts. For nursing staff, Zambia had relied upon Zimbabwians, but upon the Independence of Zimbabwe, many of these returned to their own country. However, over the last 15 years, great progress has been made in the levels of health manpower, as shown below:

Cadre	Number : Population			
	1966	1971	1977	1979
Doctors	1:11 333	1:9 500	1:7 900	1:7 800
Medical Assistants	N/A	1:5 447	1:5 102	1:5 200
Nurses	1: 7 262	1:2 421	1:3 000	1:1 000
Number of Beds	1: 301	1: 269	1: 268	1: 272

However, there still remain serious shortages in many health cadres, particularly those key to the development of health care in the rural areas, for example:

Cadre	Number needed now	Numbers employed now	Shortfall
Medical Assistants	1404	1268	136 (10%)
Health Assistants	580	395	185 (32%)
ZEN/ZEM*	3548	2150	1398 (39%)

* Zambian enrolled nurses and midwives.

8.3 Focus of the Manpower Projections

The health manpower projections undertaken in Zambia covered the following categories of health manpower at each level of the service:

- Doctors and Specialists
- Enrolled nurses
- Public health nurses
- Medical assistants
- Health inspectors
- Health assistants
- Laboratory assistants
- PHC coordinators.

8.4 Approach and Methods Used

In order to improve health services in Zambia and to enable the successful development of PHC programmes, the immediate priorities for manpower were to provide an adequate level of staff in existing health facilities (particularly at health centres and district hospitals) and to staff the new health centres as they were completed. The first step was therefore was to concentrate on the establishment and implementation of minimum staffing standards.

The method used for the projection of requirements was that of service targets, based on standard staffing schedules for each type of facility. The targets were derived from estimates of the staff required both for existing facilities and services and for proposed new institutions. (By 1989 it was planned to build a total of 15 new hospitals and 200 additional health centres).

Projections of supply for each cadre were based on current stock and training outputs, taking into account previous patterns of attrition.

8.5 Results Obtained

Based on minimum staffing requirements and the projection of existing training outputs for the period 1980-1990, the following results were obtained:

Cadre	% of Achievement of Target by 1990
Pharmacists	133%
Enrolled Nurses	114%
Health Inspectors	98%
Health Assistants	92%
Medical Assistants	67%
Doctor/Specialists	62%
Laboratory Assistants	41%

8.6 Value of the Exercise

On the basis of the above results, and in the context of a policy which stated that Zambians should be filling 80-90% of posts in most categories by 1990, the following health manpower development plans were drawn up.

Intakes to the medical assistant training would be greatly increased. In fact, as from 1981 the annual intake has been doubled from 80 to 160. It is also proposed to increase the annual intakes of health assistants, health inspectors, and doctors. Six new schools are planned for the training of enrolled nurses (even though possible over-production might result) together with three new schools for the training of laboratory assistants.

9. ZIMBABWE

9.1 Background

Zimbabwe covers an area of 390 750 sq kms. The population (as reported in a census published in December 1982) is 7.5 million of which some 1.8 million can be considered as urban, the remainder living in the rural areas. The annual growth rate of the population has been estimated at around 3.5%, one of the highest in the world. Following a prolonged armed struggle, Zimbabwe became an independent Republic on 18 April 1980.

Zimbabwe's rural majority has a pattern of diseases common to most developing countries. Respiratory tract diseases, nutritional deficiencies, diarrhoeal diseases, malaria and infections top the list; all are preventable and most are communicable. In the past, the system of data collection on health status has been deficient both in quantity and quality and failed to reflect adequately the urgent health needs of the rural population, especially in a form which lent itself to effective action.

The Government of Zimbabwe inherited a fragmented health care system which reflected its 90 years' history under colonial status. Five sub-sectors predominate in the provision of health care: the Ministry of Health, local government, missions, industrial medical services and the private medical sub-sector. The Ministry of Health is the largest provider of health care: in 1980/81 the Ministry budgetary expenditure was Z$77.4M, representing 65% of national expenditure on health. From September 1980 all charges have been abolished for patients earning less than Z$150 a month.

Current health facilities provided by the Government include 4 central hospitals (providing a total of 3000 beds), 11 general hospitals each with 60-280 beds, 28 district hospitals, 56 rural hospitals, 4 TB sanatoria, 5 psychatric hospitals and 370 clinics. In addition to these facilities, there are a total of 67 mission hospitals. The main problems in relation to the Government facilities are a result of the colonial legacy. The 4 largest hospitals are in two cities, which represents a poor distribution of resources. There was little planning in the placement of facilities so that, for example, there are locations where district and mission hospitals exist

side-by-side whereas other districts have no hospital at all. There are no standardised sizes for the hositals, therefore, in planning services and manpower, each facility has to be evaluated individually. Nor has there been any standardisation of the services provided in each facility nor of the staffing levels per unit. For example the numbers of SRNs per bed vary widely between different hospitals.

9.2 Planning Context

In the light of the difficulties briefly summarized above, the Government of Zimbabwe has made major policy changes. The principles now adopted are that the health services should be accessible to all, that health services should be free of charge to all those earning less than Z$150 a month, that rural health services should be expanded to fulfil the principle of accessability, and that psychological aspects of accessability should be enhanced through community involvement.

A 3-year National Development Plan has been agreed covering the period 1981-1984 and, within the context of this Plan, there are plans for the reorganization of the health service. The new structure of the health service will include the 4 central hospitals to be used as the main central referral centres and which will provide both medical and SRN training; 8 provincial hospitals, each with 250-300 beds to provide, on a standardised basis, most of the major work on basic services; 55 district hospitals and 766 health centres each providing 6 beds and located so that no person has to travel more than 8-10 kms to reach one. In addition each village will have a village health worker, trained in basic health care.

To prepare for the reorganization of the health services and to begin to identify long-term priority issues in the field of health manpower development, a meeting has been planned in Zimbabwe for March 1983 to be widely attended by representatives from the Ministry of Health and other related sectors.

9.3 Current Health Manpower Situation

The numbers of health workers in each of the main professional categories employed in each of the sub-sectors in Zimbabwe in 1981 is shown below:

	PROFESSIONAL CATEGORY				
		NURSING CADRE		PREVENTIVE CADRES	
SUB-SECTOR	DOCTORS	SRNS	MEDICAL ASSISTANTS	HEALTH INSPECTORS	HEALTH ASSISTANTS
Government	303	1740	1539	21	269
Local Councils	-	45	325	-	-
Municipalities	14	187	477	54	74
Missions	29	85	281	-	-
Industrial	37	76	247	?	?
Private	279	98	18	-	-
Total	622	2231	2887	75	343

The current distribution of health manpower is inappropriate to the needs of the people. For example, whilst 80% of the population live in rural areas, only 20% of the nurses are deployed outside the urban centres as the following table illustrates:

ANNEX III

Deployment of SRNs in Zimbabwe

Total SRNs	4652	
Those in service	2231	(100%)
Those in Government service	1785	(79%)
In central hospitals	1136	(51%)
In general hospitals	456	(20%)
In district hospitals	74	(3%)
In rural hospitals/clinics	119	(5%)

The situation in relation to nursing is made even more problematic due to an exodus of qualified nurses from the country. For example, in 1980, 240 SRNs emigrated whilst 77 returned; in 1981, 270 emigrated and 95 returned; in 1982 (to May 1982), 112 SRNs emigrated and only 43 immigrated. Moreover, as the figures below show, where historically the nurse training schools have admitted mainly Europeans, (i.e. at Pararenyaiwa and United Bulawayo Hospitals), the proportion of graduates actually joining the government health services has been very low:

NURSE TRAINING SCHOOL	DEPLOYMENT OF SRN GRADUATES			
	Sept. 1981 - Jan. 1982		Jan. 1982 - Sept. 1982	
	Total Graduates	No. joining Service	Total Graduates	No. Joining Service
Harare	25	25 (100%)	73	73 (100%)
Mpu	15	15 (100%)	27	27 (100%)
Pararenyiwa	21	5 (24%)	58	13 (22%)
United Bulawayo	9	2 (22%)	26	14 (25%)

9.4 Focus of the Manpower Projections

For the period 1981-1984 the Ministry of Health has planned for a major expansion of services at the primary and secondary levels. The focus of the manpower projection work has therefore been on those cadres which are critical to the development of services at these levels, namely:

Doctors
Nurses (SRNs)
Medical Assistants (General and Maternity)
Pharmacists and Pharmaceutical Technicians
Physiotherapists and Rehabilitation Assistants
Radiographers and X-Ray Operators
Health Inspectors and Health Assistants
Medical Technologists and Laboratory Assistants
Dental Therapists and Dental Assistants
Health Service Administrators.

For the time being, the staffing patterns at the larger general and central hospitals will be maintained at current levels.

9.5 Approach and Methods Used

The Department of Health Training Co-ordination, within the Division of Health Planning of the Ministry of Health, was responsible for the work undertaken on health

manpower projections, but many people were involved in the exercise including heads of service departments and administration sections. Information was collected on present health facilities at primary and secondary levels, and on current manpower establishments, vacancies and staff in-post.

The projections of manpower requirements were based on the service target method and standard staffing schedules were developed for each type of facility at the primary and secondary levels. In addition, projections were made of the numbers of additional training staff required.

The projections of health manpower supply were based on an inventory of all students currently in health training together with the projected capacities of all training schools. In addition, a survey was made of all cadres which, due to their accumulated experience, could be upgraded to more responsible positions through shortened courses (for example, medical assistants to SRNs, unqualified orderlies to medical assistants).

9.6 Results Obtained

The results of the projections of health manpower requirements and supply to 1984 are summarized in the table below:

CADRE	Employed in 1981	Output by 1984	Total available in 1984	Required Target	Deficit Remaining in 1984
Medical Assistants	1158	1089	2247	3887	-1640
Environmental Health Officers	153	70	223	821	- 598
SRNs	298	758	1056	1210	*
Doctors	42	147	189	165	*
Pharmacists	0	51	51	55	*

* Since these cadres of health workers are also employed and required at Central and General Hospitals, deficits cannot be estimated here.

As can be seen from the above figures, deficits in the medical assistant and environmental health officer cadres - cadres which are key to the achievement of the goals of PHC - are extremely large; medical assistants by 1984 would only have reached 58% of the requirements whilst, for environmental health officers only 27% of the target requirements would be satisfied.

9.7 Value of the Exercise

One of the major benefits of the projections exercise is that the Ministry of Health now has quantified evidence of the manpower implications of the agreed health policies and targets and is aware of the problems to be faced if health manpower development is to keep pace with planned service developments.

In practical terms, the projections exercise has already resulted in several remedial initiatives. A decision has been made to build 8 new training centres at provincial level for the training of medicalassistants and environmental health officers, which should provide a large increase in the annual outputs of these much-needed cadres. The capacity of all courses for health manpower will be monitored to ensure they are fully utilised. In addition, short upgrading programmes are being prepared for staff who have experience and skills beyond their current responsibility (e.g. medical assistants to be upgraded to SRNs). Shortened courses have also been made available for ex-combatants to qualify for health service posts. The medical assistant training programme is to be shortened from three years to two and the Government is now providing considerable support to the mission training schools.

The exercise has also brought many health manpower management difficulties to the fore. Prime amongst these is the problem of rural deployment and steps have now been taken for compulsory posting of state registered nurses to a rural area for 6 months following graduation. Other difficulties have been highlighted in relation to the level of health workers' salaries compared with other sectors (a proposal has now been put to the Public Service Commission to raise the wages of Ministry of Health employees), to the lack of accommodation in rural areas and to the problems of rural transportation. The information collection exercise undertaken as part of the projections work has now been established as a regular procedure; the student inventory is now undertaken annually and a monthly vacancy list is produced to indicate staffing shortfalls.

Considerable benefits have already been derived from the manpower projections exercise and these are likely to be consolidated and expanded upon as subsequent work on health manpower development continues with the March meeting.

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