Introduction

Aims of tile National HRH Policy

National HRH Policy is to ensure that tile appropriate number and distribution *of* the various categories *of* health personnel, who are socially responsible and technically competent, are available at the right time and place to provide health care to all the people of Nepal in general, and rural people in particular.

In addition, timely and appropriate management is required to maximise the utilisation and development of human resources once in place.

1.2 Rationale for this document

1.2.1. What (lie document is, who it is for and how it might be used.

Since health service delivery is so particularly labour intensive, mismatches between needs and the use of available HRH may cause great negative impact on service performance. This document aims to identify remaining mismatches and offer a structured approach to developing and implementing strategies to reduce their impact. It is aimed toward all actors with an interest in the need for and supply of personnel related to the delivery of health services, be they active in the governmental, private-for-profit, non-governmental or donor sectors. For these actors, it should provide an informational overview of the HRH situation as it stands in June 1996 (see sections 1.2.4. and 4.2.), clarify outstanding issues and act as a starting point for further Discussion of and commitment to action to improve health service delivery in Nepal.

1.2.2 Concept of a rolling document

Every aspect of the planning and management of health personnel is a dynamic process. Constantly updating the information oil which decisions are based, repeatedly tracking changes in the political and policy-making context and consistently adjusting implementation in the light of feedback from the field are all vital for effective policy and action - data and decisions cannot and should not remain static. To remain useful therefore, any planning document must also be continually updated or 'rolled' to ensure its information and recommendations remain valid. This 1996 Master Plan should be seen as just another step of what must remain an 'rolling' process, that of planning the development and utilisation of human resources for health.

1.2.3 Previous HRH planning exercises

There have been a number of previous planning exercises.

At the start of the Fifth Plan period (1975-80), requirements of 16 selected categories of health personnel over three Five-year periods were projected, namely 1975-80, 1980-85 and 1985-90. Calculations were based on the public sector commitment as envisaged by the National Health Plan and highlighted a shortage *of* all selected categories of personnel.

In 1980, a second personnel planning exercise focusing on the public sector (excluding the police or military) noted a shortage *of* most categories of staff. This fifteen year old document also discussed the enduring management issues of unstaffed positions due to deputations and recommended the formation of a full-time human resources planning secretariat to act as the secretary of a steering committee.

In 1982, an interim report noted that significant shortfalls for all categories of health personnel would continue to the end of the 7th five-year plan (1985-90).

In 1986, a detailed health personnel planning exercise was undertaken, examining the demand and supply of staff. Non-government organizational requirement were included but the armed forces were excluded for security reasons. Though again it noted shortfalls in all categories, these appeared particularly acute in the case of doctors, nurses, auxiliary health workers (AHWs), health assistants/senior AHWs, (HA/SAHW), pharmacists, sanitarians and vaidya, Nine year ago, staff management and utilization recommendations included administrative measures to improve utilisation through faster creation and filling of posts, "posting of staff appropriate to their training, more efficient work organization, consistent application of rules and regulations, opportunities for career development and sound manpower planning."

In 1993, the first 'Master Plan for the Development and Utilisation of Human Resources for Health in Nepal' was completed. Generated by a Task Force with assistance from a national consultant and with technical support from WHO, the 1993 'Master Plan' made great strides in encompassing data from the I/NGO, private, military and police sectors. In projecting staff requirements and production until 1997, it noted continuing shortfall of key categories such as assistant nurse midwives (ANMs), AIIWs and general medical officers as well as demonstrating equity imbalances with the regional distribution of medical specialists. Recommendations included attempts to address the need to place and retain staff in remote areas and supervise their performance. It also stressed the need to create policy formulating and implementing bodies within the government, dedicated to follow through and track the progress of these recommendations.

In 1995 HIMDD determined that the 1993 Master Plan needed updating. It requested assistance from the Eastern Region Primary

Health Care Project, funded by the Overseas Development Administration of UK in the preparation of a Source Document which was intended to provide a start for the process of the HRHMP rolling forward.

1.2.4. Current Version The 1996 version is based largely on the 1995 Source Document, but has updated tables and text reflecting clarification and recalculation of sanctioned posts, and updated text about prioritization of HRII issues as of May 1996.

Clearly, the Ministry has addressed some of the recommendations of previous human resource planning exercises. However, enduring issues of personnel preparation, deployment and management continue to prevent the health care delivery system from fulfilling its potential.

2. Background information

2.1. Terrain and Regions

Nepal has an area of 147,181 square kilometers with an east-west length of about 885 km and an average north-south width of 193 km. It is divided into three east-west belts. The northern-most belt is the Himalayan mountain region which varies in altitude from 4,880 to 8,848 meters and has an alpine climate with very severe winter. The topography and climate make health delivery to the 7.8% of the population who live in this 15% of the total land surface extremely difficult. The middle belt is called the mid-hill or hill region which varies in altitude from 300 to 3,990 meters and accounts from 68% of the total land surface and 45.6%of the population. The hill belt has a moderate climate with an average miximum temperature of 27 degrees centigrade in the summer and an average of 2 degrees centigrade in the winter. The remaining 17% of the land lies in the southern belet called the terai which reaches a maximum altitude of 300 meters and accounts for 46.6% of the population. It has a subtropical climate with a hot summer and a mild winter. With 83% of the land consisting of mountains and hills, transport and communications are very difficult and poorly developed.

Nepal is divided into five development regions, namely the Far Western, Mid-Western, Western, Central and Eastern Regions. These are in turn divided into 14 zones, divided into a total of 75 districts.

2.2. Population

The 1991 census gave a population total of 18,462,081. Since 1931 the population growth rate has been steadily high and in 1991 was 2.08%. It is estimated that by the year 2000, the population will reach 23.2 million 42% of the population are under 15 years of age. 21% of women are in the reproductive ages of 15-44 years.

In 1991, population was densest in the terai at 258.8 persons per square kilometer, followed by the hills (142 per km2) than the mountains (26.8 per km2). However, since the proportion of arable land is much smaller in the hills than in the terai, the population density in arable land becomes reversed. In 1981, the number of persons per square kilometer of arable land in the terai was 507 compared to 1320 in the hills.

There continues to be steady out-migration from the mountains and hills towards the terai, increasing the percentage in the latter. It is projected that by the year 2000, the proportion of population in the mountains will have fallen to 5.8% and that of the hills to 44.4% while that of the terai will have risen to 49.8%.

Nepal is a rapidly urbanizing nation, the average annual urban growth rate being 7.4%. In 1981, the percentage of urban population was 6.4% but had reached 9.0% by 1990. By 2010, it is expected that 35% of the population will live in urban areas.

2.3. The Economy

About 90% of the population derive their livelihood from agriculture and allied activities. The main source of domestic income is food production and 56% of the gross domestic product comes from agriculture. Tourism in an important source of foreign exchange, In 1991, 293,000. tourists visited Nepal resulting in earnings totaling US $58,589,000.

Forest are an important economic resource in Nepal, covering 37.6% of the land surface. Most of the populations are dependent upon it for fuel, timber, fodder for animals and herbs. In 1988-89, 95% of energy consumption came from forest products and animal wastes.

Gross Domestic Product (GDP) for 1991/2 was 130685 million rupees with the major share coming from agriculture (56%) followed by community and personal services (7.79%) financial and real estate, construction, transport, communication and storage, The per capita GDP for 1991 was Rs. 9000 (US $180)

The National Planning Commission estimates that 42% of Nepal's total population lives below the poverty line. Poverty is largely related to the country's dependence on agriculture, with land holdings becoming smaller as the population continues to increase. Nepal was a net exporter of grains throughout the 1960's and 1970's but now produces less than its own consumption requirements. It has been estimated that 36% of the total population consume less than the minimum calorie requirement. The bottom third (12% of the population) consume as little as 20-25%, of the require a minimum.

2.4 Health Status

Life expectancy at birth in 1990 was estimated to be 54.02 years, that for the male being 55.38 while that for the female is only 52.6. Nepal is one of only three countries in the world where female life expectancy is less than that for males, the other two being Bangladesh and Bhutan.

It is estimated that 850 maternal deaths occur for every 100,000 births which means that about 6000 women die in childbirth every year. Out of every 10(1 births, 92 take place in the home and about 65% are not attended by a trained person (nurse, ANM or trained traditional birth attendant). The majority are attended by a traditional birth attendant or untrained female relative. It is estimated that about 40% of this large proportion of maternal deaths are related to abortions and that the induced abortion rate is 3.58 per 1000 rural women. It is suspected that births and many maternal deaths go unreported. The World Bank report on the social sector (1989) estimates that maternal morbidity and disability are 3 to 4, times higher than maternal mortality. It is reported that about 24% of women of child bearing age (15-44 years) receive anti-tetanus toxoid leaving much scope for improvement.

Infant mortality is estimated to be 102 per 1000 live births. There is considerable variation in this mortality rate, being highest in the mountains, particularly of the Far and Mid-West Regions and lowest in the terai and the Eastern Region. It is estimated that about half of the infant deaths occur in the neonatal period and that this is partly related to low birth weights reported to be about 26% among new-borns. It is estimated that 61.8% of children aged 6 months to 5 years are nutritionally stunted while 83.5% have some degree of malnutrition with 8.6% suffering from severe malnutrition.

Approximately 54% of infants under 5 year of age receive BCG, 26% receive DPT 3 and polio 3 vaccine whilst 27% receive measles vaccine. Only 19% of children aged 12-59 months are fully immunized. (page 155, Neupane and Shrestha, 1993) Common causes of out and in-patient care are gastro-enteritis, upper respiratory tract infection, typhoid, tuberculosis, worm infestations, fevers and abdominal diseases. Accidents and abortions are also important causes of admissions to in-patient care. At the health post level, skin disease, worm infestations and those diseases listed above are important causes of attendance.

All of these illnesses are associated with poor sanitation and lack clean water supply. In 1990, it was estimated that by 34.17 of the rural population were covered by safe water supplies compared to 79.2% of the urban population. It was also estimated that only 3% of the rural population had access to excreta disposal facilities compared to 40.6% of the urban Population.

There appears to be an increase in the incidence of malaria. People in the terai and river valleys are most at risk. Associated with reduction in earlier malaria control measures such as spraying with DDT, there appears to be a resurgence of kala-azar (visceral leishmaniasis), most cases occurring in the central and eastern terai neighboring Northern Bihar in India. The disease mainly affects children.

While emphasis has rightly been given to infectious diseases in the past, there is growing awareness of the need to take more action with regard to cardiovascular diseases, nephritis and diabetes. With increasing life expectancy and added environmental pollution, the neoplasms are on the rise. Drug abuse and alcoholism are said to be on the increase.

2.5 Recent factors affecting health personnel demand and supply

2.5.1. Progress and impact of the 1993 MoH re-organization (I)

In line with the National Health Policy (1991) and the objectives of the Eighth Plan (1992-97) a new organizational structure was introduced in July 1993. It is intended to: involve regional and district levels in the planning and budgeting process through decentralization of responsibility for planning, implementation, monitoring and supervision.
Strengthen the process of programme integration which started around 1987

Merge the management of curative and preventative health services at district level through the establishment of a District Health Office.

bring together functions such as finance, logistics, training, IEC and MIS in order to improve efficiency.

Eliminate development staff positions.

Major structural changes have taken place at central level, coupled with a ma jou reduction the level of staffing. The Health Ministry is currently divided into a Department of Health Services (DHS) and a Ministry of Health. All previously existing, and essentially vertically organised, divisions have been integrated into five divisions in the DHS. Inevitably, there were short-run consequences of such disruption with uncertainty over the new division and co-ordination of tasks and many of the technical positions remaining unfilled. Longer-term gains will depend upon the deployment of skilled staff, integration of activities, the management and leadership skills in the Divisions and the resources allocated to the tasks they undertake.

Regional Health Services Directorates were strengthened in staffing number and given more responsibilities with emphasis on their role in monitoring and supervising districts in the preparation and implementation of district health plans. However, they often remain understaffed and with limited resources for such tasks such that they may be often by-passed by the district level.

The merging of the District Public Health Office and the District Hospital created many implementation issues (see for example those described in Aitkin 1994). In particular, the appointment of the most senior officer in-charge of the two different offices to head a single office has usually meant the appointment of the hospital in-charge. This has often put pressure on the relationship between these two professionals, led to the demotivation of many DPHOs.

At the local level, any remaining static health posts (HPs) will be made into integrated HPs, with the staffing level reduced by three staff, i.e. AHW, ANM and Peon. The reduction in staff has been made to permit staffing of the newly-established sub-health posts (SHPs). One SHP per VDC is envisaged, with a total of 3199 planned to become operational by 1995. The construction and sitting of the SHP will be the community's responsibility in an attempt to involve local communities in the delivery of health services. HMG will then provide the staff, equipment and supplies.
In total, the 1993 re-organisation of the MoH has resulted in a 25% reduction of staff at central and regional levels. The periphery saw an increase of approximately 6% largely as a result of the planned establishment of SHPs.

2.5.2 Growth of the private sector

Given the absolute resource constraints faced by HMG/N, the government supports the development of private facilities to meet demand for both the delivery of health services and the production of trained human resources.

On the delivery side, in addition to private clinics (often run by MoH-employed staff outside their salaried working hours,) there has been a rapid expansion of the number of nursing homes offering secondary and tertiary care since the mid-1980s. This development has been largely confined to Kathmandu and other large urban areas such as Biratnagar and Pokhara. The Health Economics Tack Force (November 1994, p.19) estimates the total investment made by these nursing homes as Rs. 4.83 million 1993/4 and thus represents only 0.5% of the total resources available in the health sector in 1993/4. However, such a growing trend may result in a new and rapidly increasing demand for health personnel, potentially threatening to draw such staff away from MoH health service delivery. On the personnel supply-side, the last two years has also witnessed the establishment of private-for-profit training institutions. Funded largely by investment from overseas, especially India, these colleges

are largely focusing upon the production of doctors, though some private schools also train ANMs. Both service delivery and personnel training institution have created new tasks for the MoH in terms of setting and enforcing standards of quality and co-ordinating activities between tile sectors.

2.5.3 Changes in the foci of IOM, CTEVT, and NHTC.

I0M (the following is largely taken from Tribhuvan University Institute of Medicine (1995) "The Profile of Institute of Medicine").

CTFVT (tile following is largely extracted from Council for Technical Education and Vocational Training (1994) "CTEVT Profile")

The Council for Technical Education and Vocational Training (CTEVT) was mandated by a 1988 law to produce basic and middle level personnel. Since then, its activities and sphere of influence have been growing. Its objectives are (3, p.1):

a. to develop national policies in the field of technical education and vocational training which enable all persons to receive appropriate training, enabling them to contribute to their own and the country's development.

b. to organise and co-ordinate technical education and vocational training below the bachelor degree level through manpower needs assessment, recognition, accreditation, curriculum development, creation of minimum standards for training institutions etc.

c. to standardise, test and certify the levels of skills of persons in technical fields.

d. to produce basic and middle-level skilled manpower

e. to train technical instructors.

CTEVT currently operates three kinds of training programme - technical schools, technical instructor training institute and vocational training and community development institutions. In addition, it is responsible for granting provisional recognition to seven private health training institutions. Full recognition may be granted after CTFVT has evaluated their performance. Linkages with the private sector also involve developing curricula, selecting courses and sharing costs in order to improve the employment and career development prospects of trainees. A preliminary assessment of needs and an action plan have been developed.

With the mandate to undertake all basic and middle level skill development, CTVET is working to create the capacity to absorb all technical training programs presently run by T.U. up to and including diploma level.

NHTC (the following is largely extracted from National Health Training Centre Annual Report, Magh 2051)

Much health training used to be done through mobile camps. With the introduction of the integrated community health approach, it was felt necessary to institutionalise health training. Therefore Regional Training Centres were established in February 1982 in Dhankuta (Eastern Region), Pathlaiya (Central Region), Pokhara (Western Region) and Sukhet (Mid Western Region). The Far Western Regional Training Centre was established in July 1990. At that time, the organisational role of these training institutions was limited to training Village Health Workers (VHW's) and management orientation to district and health host personnel about integrated health services.

With the introduction of the New Health Policy in 1991, a National Training Co-ordination Unit was established in the Ministry of health. AHW and MCHWs training centres were established in Rajbiraj (Saptari), Mahendra Nagar (Dhanusha), Biratnagar, Janakpur, Bhairahawa and Nepalgunj in addition to Regional Training Centres. With the restructuring of health services in July 1993, the National Health Training Centre was established in Kathmandu at Teku.

NHTC objectives are as follows:

a. to provide institutional leadership in the area of health manpower training.

b. to plan, conduct, supervise, monitor an evaluate training programmes at centre, regional and district levels.

c. to continue to assess training needs, review Job descriptions of health workers and refine/adjust/develop training curricula and reading materials for all in-service training programmes.

d. to organise and channel all the in-service training programmes planned by different programme units through NHTC with the objective of achieving an optimum output from a minimum of investment by an integrated approach.

e. to develop institutional capacity of Nation/Regional Training Centres for upgrading training quality.

f. to enquire about new approaches and developments in the field of training and management and develop NIITC as a model National Training Institution.

NHTC's operational objectives are:

a. to continue to conduct basic training courses for preparing AHW, MCHW and VHWs through the Regional Training Centres.
b. to continue to implement Female Community Health Volunteer Programme-related training activities.
c. to continue to implement TBA programme related training for the promotion of safe deliveries at home.
d. to co-ordinate and conduct training programmes related to Primary Health Programme, Disease Control, Management Information Systems and Staff Development.

2.5.4 Health Institutions and Manpower Development Division (HIMDD).

The HIMD Division was established during the 1993 MoH re-organisation. From that time until the present, it has operated with three sections which reflect the size and range of its responsibilities: health institutions, manpower development (including international training fellowships) and quality control. HIMDD has been working to strengthen its operational planning with assistance from GTZ and progress has been made in clarifying its objectives and improving its planning processes. In line with these developments, HIMDD has also proposed a new structure for approval in the 1995 organogram. This may include a further division of the manpower section into three subsections: fellowship sub-section, information sub-section (incorporating HuRDIS - for further information on HuRDIS, see section 5.7) and the human resources for health (HRH) secretariat/unit. Strengthening of the HRH unit and its, full integration with the information sub-section will be particularly crucial to effective implementation of this 1995 HRH Master Plan its `rolling' in the future (see section 1.2.2)

3. The Policy Basis of the Master Man

HRH objective

In order to ensure the most const-effective delivery of health care in the largest number of people in an equitable and socially just manner. The objective of the National HRH Policy are.

a. to plan for the appropriate numbers, types and distribution of socially responsible and technically competent health personnel who are available at the appropriate time and place to provide health care to the people.

b. to train socially responsible and technically competent health personnel who have the knowledge, skills and positive attitudes and motivation relevant to their function and who are able to continue learning to up-grade their skills and knowledge.

c. to ensure that health personnel are appropriately recruited, trained, deployed and adequately supported, supervised, updated and continually educated and managed so that their performance and productivity are optimal.

d. To collaborate with universities, non-government and private sectors in the production and deployment of human resources for health.

3.2 National Health Policy

The HRH Master Plan was formulated to support the National Health Policy and the Eighth Five-year Plan. The primary objectives of the proposed Health Policy are to upgrade the health standards of the majority of the rural population by:

- extending Basic Primary Health Services to the village level
- making modern medical facilities accessible.

The Health Policy made a umber of recommendations emphasizing the need to decentialise the planning and management of health services down to the district and village level. These recommendations formed the basis of the 1993 re-organisation described above.

In addition, the policy recommends that main health service components will focus upon.

- Preventative health services - FPMCH, EPI, Safe Motherhood, Communicable Disease Control Programmes etc.

- Promotive health services - Health education and information, Nutrition, Environmental health.
- Curative health services - strengthening and expansion of curative health services

- Basic primary health services

- Community participation in health services

Policy guidelines for the development and management of health personnel state:

- Capable personnel required for various health facilities will be developed in a planned manner.

- Necessary cooperation will be extended for institutional development of the main organisations in the country producing personnel (Institute of Medicine, CTEVT, NHTC and RTCs) to raise the production capacity.

- Necessary arrangements for training in foreign countries will be made in order to produce those categories of personnel which cannot be produced in-country.

- Necessary reforms will be made in transfer, promotion and career development procedures for health personnel at various levels.

- Arrangements will be made to provide special benefits to encourage health personnel to work in remote rural areas.

3.3 The Eighth Five-year Development Plan

The Eighth Five-year Development Plan sets out in considerable detail the planned expansion of the health care delivery system. A1! Previous HRH planning exercises, up to and including this one, have based their projections on this plan-led approach. The objectives of the Flight Plan are to:

a. prepare the health work-force necessary for the development of the country and to improve the health status of the people.
b. Extend the basic primary and curative health services to the rural people at large,
c. Bring population growth under control by facilitating FPMCH services at the local level to meet their expectations.
d. Develop specialist-orientated quality health services in the country, and to develop central hospitals and specialty hospitals. Also lo encourage the private sector to provide general and specialty health care in the country.

It is clear that clear leadership and vision will be necessary to resolve any contradiction between this apparent simultaneous focus upon primary and specialty care.

The Eighth Plan also selects the following service and personnel areas as priorities:

- Basic primary health services.
- Female health volunteer.
- Sub-health post, health post, primary health care centres.
- FPMCH.
- Malaria, kala-azar and tuberculosis control.
- Extended programme on immunisation.
- Heath education and communication programme.
- Leprosy control.
- Nutrition programme.
- Diarrhoea and acute respiratory infection control.
- Curative services.
- Ayurveclha development and other traditional healing systems.
- Goiter and cretinism control.
- Environmental health programme.
- Drug management.
- Sexually transmitted diseases and AIDS control.
- Epidemiology programme.
- Heath laboratory.
- Nursing development programme.
- Nepal Health Research Council.
- Mobile health teams.

Finally, the Eighth Plan identifies two areas of Humen resource development requiring attention:

1. The capacity of training institutions, including the Institute of Medicine (IOM) must be expanded to produce additional personnel in a planned way,

2. To produce high level health manpower in Nepal, the public and private sectors must be mobilised. Basic and Medium level staff will be trained inside the country. Some specialty and super-specialty personnel can be trained in recognised teaching institutions overseas.

Numerical description of the HRH situation

IN order to plan the effective development and utilisation of human resources for health, it is necessary to have an accurate picture of where shortage or over supply continue to be a problem and to identify progress since last Master Plan. The section presents the health staffing situation as of may 1995 sanctioned posts updated to june 1996, See

section '4.2) and project the expected situation in 1996 and 1997 that is until the end of the current five years plan it covers:

- the current levels of staff required and in place for the delivery of health services, and health personnel production (human resource 'demand').

- the output new trained health personnel (Human resource 'supply').

- 'matching' demand and supply to determine problems of the under/over provision of staff.

. It includes data from the following sectors:

- Ministry of Health
- Ministry of Education and Culture
- Other HMG/N organizations (military, police)
- Private INGOs and NGOs
- Independent bodies (such as IOM)
- Donors

4.1. Method of data collection and analysis

1 .1 Quantitative data

Up-to-date and accurate data for the planning of HRH was not comprehensively available from MoH sources in Kathmandu. Data needs were analysed and tables created (see Appendix). Investigation areas were then allocated to ten small teams of data collectors (see Appendix). Data on MoH health service delivery institutions at and below tile regional level were collected from each regional directorate. Data included 'sanctioned posts (SP),' 'Filled posts (FP)', and 'manned posts (MP)' (for definitions (see Appendix). All other information was obtained by contacting the institution directly. Raw numerical data were analysed using *Excel* spreadsheets and are available in digital form.

4.1.2 Qualitative data

In addition to the collection of numerical data, informed opinions about the nature of problems and possible strategies for their amelioration were gathered during a series of interviews. Key informants were selected on the basis of their representation of the range of institutional and sector types under study (e.g., ministries, training institutions, private sector) and their availability for interview.

4.2 Key issue of the HRH situation: calculating the number of MoH sanctioned posts

Some of the most basic and important of HRH figures concern the shortage or over-supply of different categories of staff. Calculating these figures requires the comparison of demand for staff with the 'supply' of staff. For the MoH, staff demand is represented by the number of sanctioned posts for each category.
However two main problems emerged in attempting to determine the number of MoH sanctioned posts:

l. During the initial data collection stage, the number of sanctioned posts were collected directly from the records of the service deliverers, i.e. from regional records for zonal level institutions and below, from the records of each of the tertiary level institutions. However, during analysis, it became clear that these differed from those slated in the 1993 Organogram document. In addition, it emerged that a second organograim had been issued in 1994 (subsequently followed by a third version containing corrections to tile second) but that not all central level staff were aware of existence. Thus there appealed to be some degree of difference in:

a. the number of sanctioned hosts on which service deliverers appear to base their calculations compared to. those on which central policy decisions are based.

b. the number of sanctioned posts used in policy making by different sections of the MoH.
as a result of these variations, an extended process of discussions occurred in 1995-96. This included participation by representatives of the MoH, HuRDIS (GTZ) and ERPHCP. This resulted in a single list of sanctioned posts which appears to he widely agreed upon. This is an example of the beneficial effect of the rigor required by establishing a functioning personnel database system: HuRDIS.

2. Variation also emerged in the definition of different categories, i.e. the staffing categories used by the organogram and MoH service deliverers were not always the same. As well as creating problems in determining the number of each sanctioned post (SP), this in turn created problems in determining the proportion of each which were filled and staffed.

PLEASE NOTE': Table 1.1 and 1.2 on the following pages present the figures for sanctioned posts as defined by the 1996 recalculation of sanctioned posts. No new collection of data on filled and manned posts could be undertaken at this time, so the information for them is from the 1995 collection of field data.

As the 1996 recalculated list of sanctioned posts is somewhat different from the list sent to the field for data collection in 1995, substantial

manipulation of tile data has been necessary in order for the field data for filled and manned posts to fit the sanctioned posts list. In some places this modification was just renaming a category, but in others, two or more categories as collected in the field have been merged into one. Also as some categories were not defined on the field list, no data was collected for filled and manned posts under their heading. Such cases are commented upon in the tables. In such cases the employees who fill these sanctioned posts may have been included under other categories. In general these difficulties were for categories with relatively small numbers of posts. Thus the fraction of posts and personnel for which there was a categorization problem is small.

A more specific description of this process is contained in the cross indexing of categories in the "working" spreadsheets used to prepare the final versions printed in this document and in the tables and text describing the data collection and analysis process. These working files are found in the archive set on File in HIMDD, GTZ, WHO and ODA project offices.

Precise calculation of the over or under-supply of MoH staff requires complete consistency in both category types and numbers of sanctioned posts from each category, between central policy makers (as represented in organogram documents), service deliverers and all HRH data collectors.

Radiography Assistants show an example of the difficulty: from Table 1.1):

Category	SP	FP	MP
137 Radiographer, Asst. NGI Radiography	82	27	24
138 Radiographer, Asst. NGIIRadiography	4	35	33
Total	86	62	57

Looking at either category in isolation doesn't give the full picture. Looking at category #137 (NGI), it looks like only 33% of the posts are filled. Yet for #138 (NLII), there is an 875% oversupply. Putting these two together, as the total line does, suggest that there is mild undersupply, but 3/4ths are filled. The current data does not permit saying whether this is because of deputation/"acting up" by staff from the NLII to the NGI level, or whether category confusion and inconsistency resulted in the reported filled and

It is strongly recommended that these figure and made more accurate through an updating of the HRH situation in which such confusions are minimized. The emergence of a single list of categories and sanctioned posts in 1995-96 is a very positive step, and its survival as a single list, especially when it need updating, will be essential to proper IIRH management.

RECOMMENDATION

To achieve this, the following process must be ensured:

1. The 1993 organogram (including 1995 corrections) sets the definitive list of staffing category type and the number of sanctioned posts for each.
2. This definitive list is actively disseminated to all actors at the centre and to all service delivery institutions at all levels. There is follow-up to ensure this is complete. This includes the HRH unit of HIMDD, HuRDIS , and all MoH and other governmental offices which may take action which modifies the organogram and/or the list of categories and numbers of sanctioned workers.
3. The HRH unit, or whichever body is charged with updating the HRH Master Plan in the future, uses the definitive list in collecting and analysing all HRH data.

4.3. Present situation and projections to 1997

The following are definitions of -the calculations for each column in the projections for MoH technical and support personnel (Table 2.1)

a. SP: Numbers of sanctioned posts according to the 1993 organogram (including 1995 corrections) available in the MOH. These differ somewhat from the data collected from the regions.
b. FP: Numbers of filled posts according to data collected from the regions (1995).
c. MP: Numbers of manned posts according to the data collected from the regions. (1995)

(t5-57) Attrition: A 5% attrition rate based on initial stock was used for all categories (e.g. for 1995, 1995 FP* 0.05; for 1996, 1995 projected stock *0.05) of both technical and support staff. This is based loosely on rates used in the 1993 Master Plan for specialists and MOs, as well as consulting with personnel management consultants. This across-the-board rate is clearly not appropriate for many categories, but without better data on actual attrition (taking into consideration death, retirement, promotion, movement to other sectors, etc.) more accurate estimates are not possible. This is therefore meant to provide a general guideline only.

(r5-r7) Additional Requirements: for 1995 this is [1995 SP-FP]. 1995 SP was then subtracted from the 1997 SP to produce the additional requirements between 1995 and 1997. For ease of calculation it was assumed that half of this amount would be equired in 1996 and the other half in 1997.

(p5-p7) Production: This is based on output figures for each year provided from training institution. Since graducates of various training course may enter any one of several categories of personnel there is a difficulty in assigning output figures to specific categoies (e.g., Maters of nursing graduates may become a Nuring Administrator or Public Health Administrator). “Best guesses” were

made with staff from IOM as to where to place training output figures. Where multiple levels of one category were present (e.g. Sister GIII and GII) the production figures were placed in the most basic entry level.

(s5-s7) Projected Stock: for 1995 this is [1995 FP – attrition + production] For 1996 this is [1995 projected stock – attrition + 1996 production)

(q5-q7) Projected Requirement: for 1995 this is the 19995 SEP. For 1996 it is [1995 projected requirement + 1996 additional requirement]

Deficit/Surplus: in all years it is [projected stock – projected requirement]

General notes:

(1) Date for staff in the reserve pool and development staff are not included in these calculations. Also, the data for these two areas was collected from the MoH and no from service delivery institution records.
(2) As mentioned in section 4.2, data on SP from the recalculation was used at MOH request. All other data are from the regions from 1995.
(3) Figures from the 1993 organogram for Dharan Hospital were not used. Instead, data gathered directly from the BPKIHS were used.
(4) The SP oor VHWs is not clear in the 1993 organogram. It is assumed here that service of one VHW will be included at each health post (776 HPs in 1995, 753 HPs in 1997), sub-health post, and PHC thereby providing one VHW for each of the 3995 VDCs (referene: Director, HIMDD and HuRDIS).
(5) In the 1993 Master Plan information was gathered on 38 specific categories on staff, which included some aggregation. At MoH request, attempts have been made for the first time to gather and present disaggregated data on all technical and support staff in all sectors. As mentioned elsewhere, this has proven problematic since different people refer to the same posts by different names, thus causing confusion for data entry. The projections of deficit and surplus staff should therefore be further verified and must be viewed in this light.
(6) Pass rates of training courses were not provided by all institution. Where not provided the following pass rates were assumed, based on estimates from other institutions:
    MCHWs: 85%±
    VHWs: 85%±
    AHWs: 52%±
    ANMs: 52%±
(7) Information on TBAs and FCHVs should have been examined. However, data on these important categories of staff could be

gathered from two regions and was therefore not included in this document.

(8) Ayurved staff data are only available in aggregate from the Centre.

(9) Production output of Bachelor of Nursing courses was all allocated to “Sister”. However it reconised that some will instead go to “Public Health Nurse” either directly or later in career. Thus the surplus and deficit seen for these posts will to some extent even each other out.

(10) Training capacity in the private sector increased substantially in 1995-96. As the output of this training capacity is seen in 1997 and beyond there may be substantial changes in the surplus/deficit situation for many categ….. This will need to be monitored and up-to-date data collected in future years.

4.3.1. Present situation and projections for MoH technical personnel

The following categories show areas of projected deficit that require some attention:

* **MCHWs**
  With the expansion of sub-health posts, there is a need for well trained MCHWs. Current estimate project a shortfall of almost 2000 MCHWs in 1997, which is approximately half of the 1997 projected requirement and roughly the equivalent of the total 1995 sanctioned posts.

RECOMMENDATION: The current estimated annual production of 512 needs to be increased significantly to cover this deficit. Also, as mentioned in the 1993 Master Plan, the MCHWs' three-months training may not be sufficient to provide the necessary midwifery skills. Additional supervised practical training at PHCs or District Hospitals would be appropriate.

* **VHWS**
  Though there are 3995 sanctioned positions for VHWs, only 2/3rds (2712) of those posts are filld. These data differ greatly form the 1993 Master Plan which in fact showed a slight oversupply. The data from either Master Plan may be flawed, or the new data may suggest a high attrition rate.

RECOMMENDATION: Validate the VHW filled and manned post data, identifying where shortages occur. The present production rates, even with 100% pass rates and no attrition, will only fill 10% of the shortfall. Production will need to be increased.

* **ANMs**
  When combining ANM (NGII) and Sr. ANM (NGI) posts there is a projected 1997 deficit of 421 staff, about 30% of the 1997 projected requirement. Note that there has been no recruitment of ANMs for

the last two years. The 1993 Master Plan showed that only 45% of sanctioned posts were filled; this 1995 update reveals that around 74% of sanctioned posts are now filled. However, a recent ANM study (see LATH/HURDEC 1995 ANM study) has demonstrated the importance of examining not just aggregate under and oversupply but also the distribution of those mismatches. The study showed that ANM deficits are focused in the Far-west and Midwest regions, with a surplus in the Western and Eastern. Retention figures demonstrated that of those ANMs in post a high proportion were in the region where they received their first appointment. Therefore, this study suggests that recruitment should be focused on filling the geographical and regional undersupply.

RECOMMENDATION: Recruitment of ANMs should take place in the far-west and Midwest with a view to filling the gaps in supply in those two regions.

* **Medical Officers / generalists / physicians and specialists**

  Summary totals for medical officers and generalists are provided at the bottom of tables 1.1 and 2.1. Projections for these categories of doctors show a continued deficit overall of about one third of the 1997 projected requirement. Specific allocation to any one category is difficult because of the inconsistency of category definitions and the mobility of staff between categories. The requirement has expanded with the increase in sanctioned posts for medical officers at Primary Health Centre level. Present production is far below that necessary to meet the demand. New output from private institutions will not be realised for several years. Much of the deficit for Medical Officers is "hidden" in the smaller but numerous specialist categories.

  Data show a deficit of specialists across the board, both now and in the near future. Only a few categories of specialists are produced in Nepal: OB/GYN, ophthalmologists, paediatricians, radiologists, anesthetists, ENT surgeons, and dental surgeons. Annual production figures within Nepal are too low to meet the demand, therefore Nepal will continue to rely on staff trained outside its borders for the foreseeable future. Those categories with the highest number of sanctioned posts (e.g. OB/GYN, dental surgeons, paediatricians, pathologists, dermatologis, anaesthesiologists, general surgeons and orthopaedic surgeons) consequently reflect the highest absolute deficits by 1997.

* **Lab assistants / technicians / technologists**

  When aggregating all levels of lab assistants, technicians, and medical lab technologists there is a high deficit of staff, with undersupply of the 1997 projected requirements. There is present very little production of lab technicians, and the current production by the Central Laboratory is only a stop-gap measure. However

several new sources of lower level staff have recently emerged and thus some of tile undersupply may he resolved starting in 1997 and thereafter. Production of these categories of staff need to increase, particularly in the higher levels and specialised skills categories, to meet the large demand of 1997 and the future.

* **Oversupply**

In a very few categories is there a projection of an oversupply of personnel: Health Education Technician NGI (#51), Lab Asst. NGII (#58), Pharmacy Asst. NGI (#108), PH0 GHII (#127), Radiographer NGII(#138), Sister GIII (#144) and Staff Nurse NGI (#145). In virtually every one of these categories this may be due to either a data collection error, i.e. they might more accurately have fit info a different category according to the new organogram, or to recent increases in training from the private sector. It will take time to establish if such training will really produce the promised numbers of graduates as well as what quality their training and resultant work will be. Thus further work will be needed to follow these areas.

4.3.2 Present situation and projections for M0H support personnel

Please Note: All data for this table is from 1995. No recalculation of categories or Sanctioned posts has occurred.

This table contains all the support staff categories for the MOH as with tile technical staff, there are multiple names for similar positions, thereby hampering a clearer identification of deficits and oversupply. The MOH is not responsible for providing training for these staff, and production figures for these positions are zero. If one assumes 100% supply then the main constraining factor to filling these deficits is financial resources.

The MOH will need to consult with other training institutions outside of the health sector to define exact supply figures. Still, the following are. some categories showing considerable deficit:

* peons/helpers/watchmen/equivalent
* Statistics and Accounts Assistants
* Mukiya
* Nayab Subba

4.4. The distribution of HRH by sector

In order to plan HRH effectively, it is necessary to understand which sectors are using which human resources and in what proportions. Table 4 attempts to present this distribution of HRH for each of the four main sectors:

1. MoH

2. NGOs donor organization,
3. Print sector (including B.P.K. Memorial hospital and training institute)
3. Other agencies (police, military, IOM and CTEVT)

On particular planning issue concerning HRH is the continuing grown the private and NGO sectors and their increasing absorption of trained staff. Therefore the original aims was to compare the distribution of staff in the four sectors between the situation in 1993 and 1995. However, there are similar problems to those outlined above: changes in the staffing category definitions and the number of posts sanctioned to each over time and non-comparability of staffing categories between MoH and other sectors. These make comparisons of both absolute numbers and percentages difficult and potentially misleading.

However, it is still possible to identify categories of staff with a relatively high proportion of staff employed by sectors other than the MoH. Avoiding areas where the impact of confusions over category definitions appear greatest, and small numbers produce unusually high percentages, the main concentrations of staff include:

Private sector

• Staff nurses	21% of filled posts
• Medical officers	15°/o of filled posts (all classes)
• Medical generalists	86% of filled posts (all classes)
• Obs. and Gynae	74% of Filled posts (all classes)
• Paediatricians	43% of filled posts (all classes)
• Dental surgeons	35% of filled posts (all classes)
• Pathologists	36% of filled posts (all classes)
• Radiologists	44% of filled posts (all classes)
• Orthopaedic surgeons	53% of filled posts (all classes)
• Lab assistants/technicians	20% of filled posts (all classes)

INGOs, NGOS and donors

• ANMs	21% of filled posts (all classes)
• Public health nurses	49% of filled posts (all classes)
• Ophthalmologist	63% of filled posts
• Ophthalmic assistants	81% of filled posts
• Blood bank assistants	71% of filled posts
• Pharmacists and assistants	19% of filled posts (all classes)
• Physiotherapists & assists.	34% of filled posts (all classes)

Other agency (Police, Military, IOM and CTEVT)

• Sisters and Matrons	48% of filled posts (all classes)
• Nursing aid	54% of filled posts (all classes)
• Chest fliysician	40% of filled posts (all classes)

• Gastroenterologists	67% of filled posts (all classes)
• Dermatologists	30% of filled posts (all classes)
• Psychiatrists	43% of filled posts (all classes)
• ENT surgeons	53% of filled posts (all classes)

All additional finding is that the private and NGO/donor sectors tend to have larger percentages of the higher end of the class system for different types of staff i.e. the more senior and/or more qualified, than for more lower class staff.

For example, this applies to:

- AHW (higher percentage of NGI staff compared to NGII)
- Medical generalist (higher percentage of GI compared to GII)
- Obstetrician and Gynaecologists (higher percentage of GI compared GII)
- Orthopaedic surgeon (higher percentage of G1 compared to GII)
- Lab assistant/technician (higher percentage of NGI compared to NGII)
- Physiotherapists (higher percentage of GII compared to GIII compared to NGII)

However, there are clear exceptions. such as:

- Pharmacists (lower percentage of GII compared to GIII and GIII compared to assistants NGI)

ENT surgeons (lower percentage of GI compared to GII)

4.4.1 Recommendations for future work on HRH distribution between sectors

If the government continues to support the growth of the private and NGO/INGO/donor sectors, good planning of the production and utilization of staff will require much greater insight into a number of areas for which information is currently only scarcely available or poorly understood. These include:

1. the rate of growth of demand for each Category of staff for these sectors.
2. the proportion of this increased demand being fulfilled from basic training within Nepal versus overseas.
3. the proportion of this increased demand for staff that MoH will undertake to train.
4. movement of staff between sectors as part of improved calculations of attrition from each category for each sector.

4.5 Matching HRH demand and supply: projected over and under supply from 1995-97

Within the limitations expressed above in 2, tables 2.1 and 2.2 attempt to bring all of the major factors affecting the demand for and supply of HRH together, in order to identify the types and sizes of staffing over and undersupply likely to occur between 1995 and 1997 (should

current production, absorption and attrition rates continue at the rates currently predicated.

It should he noted that tables 2.1 and 2.2 present data for tile MoH only. There are a number of reasons for choosing not to present projections for the other sectors:

1. The two elements that make up 'additional requirement' are unavailable for the private and INGO/NGO/donor sectors. In these sectors, there is effectively:

a. no equivalent to sanctioned posts and therefore no additional requirement created by the need to put staff into unfilled sanctioned posts.

b. no available basis on which to project the likely growth rates of staff demand as new institutions become operational in the next two year.

2. Even if the numbers of new staff needed for these sectors increased quite dramatically in relation to their current size, for most categories of staff this would result in only small changes relative to the size of the deficit or surplus and thus to the remedial actions that might seem appropriate to reduce any discrepancy.

   For example, in the case of Medical Officers (GII, GIII) the current anticipated deficit for 1995, 1996 and 1997 is 227, 236, and 245 respectively. Even if the number of demand for Medical Officers in the private sector increased by a third in one year from 1995 to 1996 and from 1996 to 1997, (33% of the current stock plus the additional needs created by 5% attrition would equal 22 additional staff needed in 1996, 29 in 1997) this would still only increase the deficit by around ten percent each year. `Guesstimating' the growth in demand for these sectors might suggest a misleading level of accuracy. Such projections should therefore be deferred until more accurate bases for determining attrition, sanctioned posts, demand growth rates etc. can be identified.

4.7 Central reserve pool

Currently, the content of the central reserve pool is so ambiguous as to make its incorporation into HRH planning extremely difficult (see table 6). Firstly, the majority of staff are not identified explicitly In terms of the staffing categories for which they are eligible to work. Secondly, it is not clear how many of these staff are actually available for work (and therefore can be regarded as 'current stock') in how many are not available due to absence on leave, for training etc. Thus future updates may wish to disaggregate this reserve pool data further for its information to be available in a useable form. (N.B. Please note the difference between the central reserve pool discussed here, which includes staff away on training and leave, and the regional reserve pool (see section 6.1.5) solely consisting of staff

available for work whose deliberate creation is offered as one strategy for addressing the issue of temporary staffing gaps.