# EMERGENCY HUMAN RESOURCES FOR HEALTH PLAN, MINISTRY OF HEALTH & SOCIAL WELFARE 2007- 2011

Government of Liberia

## LIST OF ABBREVIATIONS

| | |
|---|---|
| **AIDS** | Acquired Immune Deficiency Syndrome |
| **BPHS** | Basic Package of Health Services |
| CHO | County Health Officer |
| **CHWs** | Community Health Workers |
| CM | Certified Midwife |
| EHO | Environmental Health Officer |
| **FBO** | Faith Based Organization |
| **GDP** | Gross Domestic Product |
| **GHI** | Global Health Initiatives |
| **GoL** | Government of Liberia |
| **HIV** | Human Immunodeficiency Virus |
| **HMIS** | Health Management Information System |
| **HRH** | Human Resources for Health |
| **HRIS** | **Human Resource Information System** |
| **iPRS** | Interim Poverty Reduction Strategy |
| **JFK – MC** | John Fitzgerald Kennedy Medical Centre |
| LPN | Licensed Practical Nurse |
| **MCH** | Maternal and Child Health |
| **MDGs** | Millennium Development Goals |
| **M&E** | Monitoring and Evaluation |
| **MoU** | Memorandum of Understanding |
| **MoH&SW** | Ministry of Health and Social Welfare |
| **NGO** | Non-Governmental Organization |
| **NHP** | National Health Policy |
| PA | Physician Assistant |
| **PHC** | Primary Health Care |
| **STDs** | Sexually Transmitted Diseases |
| **TB** | Tuberculosis |
| TNIMA | Tubman National Institute for Medical Arts |
| TTM | Trained Traditional Midwife |
| **UNDP** | United Nations Development Program |
| **UNICEF** | United Nations Children Fund |
| **WHO** | World Health Organization |

## 1.1 INTRODUCTION

Human Resources for Health (HRH) is a priority issue and constitute the most important resource of the health system as the Health system is labour-intensive. HRH accounts for a substantial proportion of the health sector expenditure - 80% recurrent Budget in most countries. This has therefore become more imperative for Liberia, where efforts are being made by the Government and the health sector to improve the health status of all Liberians after about a 14-year conflict period. According to WHO (2005), although much has been written on the different aspects of pos-conflict reconstruction of Health Services, little attention has been given to the effects of conflicts on the Health workforce and its implications on post-reconstruction of Health services. In recent years despite increasing recognition of the importance of HRH, and the participation of many agencies in the post-conflict reconstruction of countries, approaches and inputs have rarely been documented. As a result, there has been virtually no use or dissemination of lessons learnt leading to perpetuation of ineffective approaches and missed opportunities to effect change.

In spite of the foregoing, the Health sector of Liberia is trying to provide essential health care that is affordable and accessible to families and communities in line with Millennium Development Goals following from the Health–for-All policy for the 21st century in the Africa Region: Agenda 2020, in the 1978 Alma Ata declaration. In this direction, rehabilitations, expansions and establishment of old and new health facilities to cater for the health needs of its people, in the wake of its declining economic and human resources are on-going.

### 1.2.1Health Sector Vision, Mission and Objectives[1]

### 1.2.1 Mission

The mission of the Ministry of Health and Social Welfare is to reform the the sector to effectively deliver health and social welfare services are accessible to the people of Liberia. The MOH&SW is dedicated to equitable, accessible and sustainable health promotion and protection and the provision of comprehensive and affordable health care and social welfare services.

### 1.2.2 Vision

Liberia's vision is improved health and social welfare status and equity in health therefore becoming a model post –conflict recovery in the health field.

Enlightened leadership, sustained efforts, coherent prioritization and generous external support are needed to materialize this vision by:

- taking stock of the experience learned in other countries,
- adopting realistic and sustainable approaches, in order to make effective use of available resources,
- giving priority to PHC the allocation of available resources.
- giving attention to equity, particularly concerning persons in difficult circumstances
- tapping the potential strengths of the health sector and the opportunities for progress when they arise,
- striking productive partnerships with committed stakeholders,
- Continuously studying events so that appropriate measures can be timely taken.

### 1.2.3 Guiding Principles and Strategic Approaches

The principles guiding the policy are health as a basic human right, equity, efficiency, sustainability and accountability. The PHC approach encompassing decentralization, primary health care, community empowerment and partnership shall be followed in the enforcement of the policy.

### 1.2.4 Overall Goal

To improve the health status of an increasing number of citizens on an equal basis

### 1.2.5 Main Strategy

[1] Adapted form the Health policy of January, 2007

The goal would be achieved through expanded access to effective basic health care, backed by adequate referral services and resources.

### 1.3 Health Sector Goal for Human Resources

The policy on human resource recognises that human resources are valuable and states that the workforce must be restructured, upgraded, streamlined and redeployed according to the priorities set by this policy. A long-term comprehensive program will be launched to produce an equitably distributed and gender balanced health workforce with appropriate skills mix needed by the health services at different levels of care to assure delivery of the BPHS.

### 1.3.1 HRH Policy Objectives:

The four main objectives of the HRH component are to:

1. Ensure a coordinated approach to human resource planning;
2. Enhance health worker performance, productivity and retention; and
3. Increase the number of trained health workers and their equitable distribution
4. Ensure gender equity in employment especially in Management positions.

#### *i. HRH Planning and Policy*

Measures related to *human resource policy and planning* include:

- The Ministry will establish adequate capacity for planning the long-term development and management of the workforce, coherent with overall health sector development. This will result in an organizational upgrading of the unit presently dealing with human resource issues.
- The Ministry will revisit existing legislation related to human resources and will formulate proposals to update legislation, as necessary. The Ministry will study the impact of private health care providers on the workforce and introduce measures to effectively manage the human resource market..
- The Ministry will develop health worker recruitment, retention and deployment incentives schemes. This will require negotiation with civil service authorities on the status of health workers and their contracting conditions. Salaries and benefits will be set in accordance with education, qualification, market value, experience and performance.
- The Ministry will estimate present and future staffing needs of the health sector, in light of recovery plans, cost limits, workload, population, efficient utilization of staff, the requirements of BPHS implementation and the public/private mix. The Ministry will also consider the impact on the labour market of other programmes.

#### ii. HRH MANAGEMENT

The shortage of staff in the health system is compounded by various forms of mal-distribution primarily with a focus on urban versus rural, unskilled staff versus skilled. Imbalances in staff – population ratios and workloads also prevail. These factors have implications for effectiveness and quality services. This calls for clear guidelines and supportive mechanisms for equitable distribution and rational utilisation of available human resources for health.

Measures related to human resource management will include:

Measures related to *human resource management* will include:

- All existing job descriptions will be reviewed in light of the adopted policy. Existing job categories will be appraised to bring them in line with delivering the BPHS. The Ministry will assess the need for changing existing professional profiles or creating new categories of health workers. Adequate career structures and progression paths will be introduced for all categories.
- The Ministry shall formulate staffing criteria, according to the services to be delivered and staff workloads,

paying adequate attention to the productivity and affordability of the proposed health teams. Succession plans shall be established.

- A human resource database linked to the core HMIS database will be developed.
- The Ministry will establish a registration body for health personnel who do not have boards in collaboration with professional associations to review the qualifications of such health professionals and test their skills. Non-standard qualifications will be progressively converted into nationally-approved job categories, through dedicated training if necessary. This process will provide crucial information for the design of pre- and in-service training programs. Successful outcome on these examinations shall form the initial basis for licensure to practice by nationals and non-nationals within Liberia.
- Guidelines for the hiring of expatriate health professionals will be produced by the Ministry.
- Standard contract conditions for NGO employees will be negotiated with concerned partners.

The Ministry will introduce measures to improve workforce performance, such as providing tools and standards, rehabilitating facilities, programming in-service training, improving supervision, establishing open performance appraisal and improving coordination..

**iii. HRH TRAINING**

The effectiveness of health workers depends largely on their knowledge, skills and attitudes acquired through pre-service, in-service and continuing education, the type of curricula and training programmes (that should be based on local situation), the health worker-population ratio and the appropriate skill mix within the health team. For effective service delivery there is need for innovative strategies, which would include rationalizing health cadres i.e. creation of new health cadres, re-orientation and upgrading the current ones to meet the needs of the country, especially for poverty reduction and millennium development goals.

Measures related to *training* shall include:

- The Ministry will design and launch a rapid training program to upgrade the skills of active health workers. The module devoted to introducing the BPHS will constitute one of the first components of such a program.
- The Ministry will review training programs within two years to ensure their consistency with the National Health Policy, approved job descriptions and the BPHS.
- The Ministry will develop an accreditation and investment program to strengthen the physical and functional capacity of health worker training institutions and training programs.
- The training of skilled health workers will be expanded to cover priority health care needs.

Ongoing in-service training activities will be progressively absorbed into a comprehensive in-service training programme and coordinated within the HR Bureau, in order to improve the performance of active health workers on the basis of documented service needs.

***iv. Decentralization Requirements***

Decentralization in relation to HRH aims at bringing the services and resources closer to the health worker and the communities in order to ensure equity and accessibility in line with the National Health Policy and interim Poverty Reduction Strategy (iPRS). Therefore, it is imperative to have in place strengthened and supported institutional capacities for effective HRH decentralisation.

Appropriate organization and management structures will be put in place to handle the smooth transfer and management of HRH responsibilities from Central to County level, in accordance with the Government Policy on decentralisation.

Composition of County health teams will be reviewed for appropriateness and their capacities built to deal with the decentralization requirements.

**vi. Regulatory Bodies**

Regulatory bodies would be strengthened and supported to institute quality assurance mechanisms including setting of standards, development of work protocols, supervision guidelines and professional audit and others will be put in place to monitor and rectify performance of health staff.

Disciplinary matters, related to health professionals at various levels of the national health system (public and private), including reprimand and termination of services, will be handled on the basis of established and transparent rules and guidelines in line with the standing orders of the Civil Service.

## 1.4 Rationale and Objectives of the plan

### 1.4.1 Rationale

The rationale of this HRH plan is to provide the framework to operationalise the HRH policy priorities as outlined in the National Health (NHP) Plan of 2006 for the Health sector. The NHP has as its main objective to ensure a coordinated approach to HR Planning including the establishment of a HR Unit to carry out HR activities of planning, training and utilisation of HRH to the requirements of the Liberian community in particular the poor and vulnerable groups in line with the NHP. The plan, in order to do this, propose staffing requirements in the short term – 2007 - 2011 for the various levels within the health sector. In addition, the plan would also propose measures for the training of health service personnel to improve on the staff strength thereby meeting the HRH requirements by the year 2011 in line with the NHP and HRH Policy objectives.

The plan will stipulate staffing targets for each of the major categories of health personnel, taking into consideration the Basic package, the population growth, attrition from the workforce, outputs from training programs and present level of staffing. The economic situation of the country would also be considered. The plan will also state how recruitments should be managed in order to match staffing requirements with the number of staff actually employed. Indications of the future costs of staffing the service will also be provided. The plan will however, not be able to link the staffing targets to workloads as this has not been done owing to time constraints.

This plan is a short term one and should be reviewed regularly preferrably on yearly basis and up-dated to incorporate any relevant change that might occur. The plan shows what would happen if the various assumptions made prove to be correct and the proposals presented in the plan are implemented. Thus, one can foresee the consequences of actions and events, can monitor whether the various assumptions are true or not, and then take whatever action is appropriate to the situation.

### 1.4.2 Objectives of the plan

#### 1.4.2.1 Main Objective

The main objective of this plan is to formulate a short-term human resource development plan in line with that of the NHP and HRH plan to ensure adequate, appropriate, well-trained Human Resources at all levels of the health system in accordance with National priorities, poverty reduction strategy and Millennium Development Goals for a period of 5 years.

#### 1.4.2.2 Specific Objectives

Specifically the plan is to

a. Determine the HRH, which seeks to ensure:

- Forecasting of appropriate numbers of staff required at the service delivery points.
- Provision of requisite skills to match with the required job.

b. Outlining where resources are insufficient or likely to become insufficient.

c. Outlining the career paths and future advancement of staff and potential recruits

d. Providing an estimate of the costs of staffing the service and of training which may be relevant in budget negotiations and in monitoring costs.

e. Assisting the health authorities in designing proposals for external support and funding

### 1.4.3 Expected Results

1. Creation of scenarios and projections of HR needs bearing in mind the impact of different factors (demography, macro-economic framework assumptions for the plan period.
2. Proposals for pre-service and post-graduate training for the next 5 years;
3. Proposals for corresponding development of training institutions (basic and post-graduate);
4. Proposals for the reduction of the impact of staff losses due to migration (both internal and external) and attrition;
5. Proposals for the incentive mechanisms and motivation in the public sector;
6. Estimates of the implementation costs of the plan

## 1.5 Review of the Plan

Planning is dynamic in nature and therefore the plan factors in the economic and political events occurring during the next five years and probably the emergence of new diseases. Technology and other developments that affect the health sector should be taken into consideration during the plan period. Based on these factors cited above, there is the need to review the plan on regular basis, preferrably annually.

## 1.6 Development Process

A Rapid assessment with a component on Human Resources for Health was conducted and which highlighted the gaps in Human Resources management. Following from this, there was the need to develop HR plan based on the recommendations from the Assessment.
The Ministerial steering committee then put together a working group chaired by the Director of Nursing Service to assist in the preparation of this document.

## 1.7 Definitions

In the context of this document, the following terms are defined as:
**Health Workers**: All people engaged in actions whose primary intent is to enhance health.

**Human Resource for Health;** The human beings needed to provide quality health care delivery.

**Human Resource Development:** Measures to enhance the skills of the Human resources needed to promote, provide and improve health care delivery.

**Allied Health Staff:** These are staff whose work are associated or connected to medicine. They work to supplement and support medical work of diagnosis and treatment and these include laboratory, Radiology, dieticians and others.

**General Support Staff:** These are staff who work to support the general functions of the facility but whose functions are not directly associated with the diagnosis and treatment of patients. Their functions however, may sometimes have direct effects on the patients. These include labourers, orderlies, drivers, revenue collectors, Medical records etc.

## 2.1 SITUATION ANALYSIS

### 2.2 The health care system - structure

Liberia has a three-tier Health system comprising the Primary, Secondary and the Tertiary levels. The Primary level consists of the clinics, the secondary comprising the Health centres and hospitals whilst the Tertiary made up of the Referral Hospital.

The Health sector is managed at two levels, the Central and County levels. At the Central level, the Minister of Health, four Deputy Ministers and four Assistant Ministers are the Government's appointees. The Deputy Ministers are responsible for the bureaus of Health Services, Planning, Information Research and statistics, Administration and Social Welfare. To Support the latter in the management of the health sector, the central level is further organised into several divisions headed by directors and coordinated by the four Assistant Ministers.
These divisions plan, direct, manage and coordinate all government sector health care activity throughout the country.

At the County level, each of the fifteen (15) counties is headed by a county Health Officer (CHO), each with a County Health Management Team. These CHOs have overall responsibility for the Primary and secondary health care facilities and their staff within the respective counties. The tertiary level, which comprises the hospitals and one Teaching hospital on the other hand, have semi autonomous boards and are administered by Hospital Administrator and Chief Medical Officer respectively.

Other stakeholders in the recruitment and management of personnel include the Civil Service and the technical heads of some categories of health staff. These stakeholders oversee the personnel issues of the staff at all these levels. The regulation of standards of practice is by the individual professional Associations.

Management of Human Resources however, is centralised and is within the Planning Bureau. The HRH systems are weak and inefficient at both the central and county levels.

### 2.3 The Health Systems[2] Context of the Plan

Liberia has a draft National Health Plan and policy each with a component on HRH. There is however no HRH plan. Thus there is a need for a short-term plan (5years) to be in line with the National Health Plan and HRH policy priorities. The plan would also take account of a number of national health profile. These include:

i. **Demography:** According to the NHP, the last population census of Liberia was conducted in 1984. Since then, the Ministry of Planning & Economic Affairs has updated its population projections. Its 2006 population estimate is 3.2 million, with a growth rate of 2.4%. Population density is 84 per square mile. Population distribution is very uneven, with four counties hosting 70% of the total population. The South-East is very sparsely settled. The age-group 0 – 18 years accounts for about 54% of the population. Nearly 15% are under 5 years of age while approximately 3% of the population is over the age of 65.

ii. **Socio-economic:** The Socio-economic profile for Liberia has been described as one already in decline throughout the 80s and 90s, due to social and political upheavals and mismanagement. The war destroyed productive capacity and physical infrastructure on a massive scale. Between 1987 and 1997, Per capita Gross Domestic Product (GDP) in 2005 prices declined from US$1,269 in 1980 to US$163 in 2005, a decline of 87 percent. It is estimated that three fourths of the population is living below the poverty line on less than US$1 a day. The south-eastern region of the country, particularly Sinoe, Grand Gedeh, River Gee, Grand Kru and Maryland counties, lags behind the rest of the country in terms of socio-economic development. The inflation rate was 11.1% in the 2005.

iii. **Mortality and Morbidity**

The Health Services of Liberia has been disrupted by the 14 years of war and shows the following morbidity and mortality burden as outlined in the draft National Health Policy of 2007.

The infant mortality rate is currently estimated to be 157/1,000 live births -- well above the Sub-Saharan Africa average of 102/1000 live births and the world average of 54. The under-five/child mortality rate is also high; at 235/1,000 live births. Liberia ranks above the Sub-Saharan Africa average of 171/1,000 live births and the world average of 79/1,000. In 2005, the maternal mortality ratio was estimated by UNFPA at 580/100,000 live births. The crude mortality rate was recently estimated in rural areas at the alarming level of 1.1 deaths per 10,000 persons per day.

Malaria, acute respiratory infections, diarrhoea, tuberculosis, sexually-transmitted diseases (STDs), worms, skin diseases, malnutrition, and anaemia are the most common causes of ill health. Malaria accounts for up to 10 per cent of reported deaths. Diarrheal diseases in Liberia are the second leading cause of morbidity and mortality. HIV prevalence rate estimates vary widely, but the Interim Poverty Reduction Strategy (iPRS) suggests a figure of 5.2%. All agree, however, that HIV/AIDS is a problem of mounting severity. It appears that Monrovia and the South-East have higher HIV prevalence rates than the rest of the country.

**iv. Nutrition**

Approximately 27% of children under five years are underweight. an estimated 7% are wasted, while 39% are stunted, iron deficiency anemia was 87% in children 6-35 months, 58% in non-pregnant women 14-49 years, and 62% in pregnant women aged 14-49 years. Vitamin A deficiency affects 52.9% of children 6-35 months and 12% of pregnant women. Only 35% of children below 6 months of age are exclusively breast-fed. Zinc supplementation for children has not yet been introduced.

**v. Water and Sanitation**

Access to safe water declined from 58% of households in 1997 to 24% in 2005, due to the destruction of piped water facilities in urban settings. Nationwide, 26% of households have access to sanitation but significant rural/urban disparities exist – with sanitation available to 49% of urban residents and only 7% of rural residents.

[2] Adapted form NHP of January 2007

With all the above challenges, the data on Human Resources showed gross shortages with misdistribution favouring the urban and larger tertiary facilities. There is therefore the urgent need to plan the development of HRH.

## 2.4 National HRH Situation

### 2.4.1 Analysis of the Current HRH – Challenges

According to the Rapid Assessment report, the current total Health workforce in Liberia stands at 4,970(including Nurse Aides which number about 1091) to serve a population of 3.2 million. Of this figure, 1004 are part-time and the remaining 3,966 are full time and on Government payroll. The total Health worker population ratio therefore stands at 1:806. However, some of these figures are disputed. For example, according to the Rapid Assessment, this figure comprises 168 Medical doctors. However, statistics from the Liberia Medical Board indicate a total of 122 doctors of which 87 are Nationals and 35 Non-Liberians. Again, only 51 (42%) made up of 41 Liberians and 10 Non-Liberians work for the MOH&SW while the remaining 71 representing 58% (including 46 Liberians) work for the Private sector - Faith Based Organisations (FBOs, 17%) and 83% for the NGOs and UN agencies. The other categories made up of Nurses of all categories, pharmacists, Physician Assistants, laboratory staff, Radiology Staff, Social Welfare, professionals at central level, and the remaining figure is made up of Technicians and all other support staff. **The payroll however indicates a total workforce of 2,637.**

Although the ratio appears good, details of the staff categories shows a skew towards Nurse Aides and Trained Traditional Midwives – 1,406 whose training is a source of worry to many Health policy makers. The large numbers of support staff present a peculiar human resource management challenge.

### 2.4.2. Human Resources for Mental Health

The policy has included Mental Health as a priority area and has highlighted in the implementation plan the rehabilitation of mental health facilities. The rapid assessment, however, did not indicate the number of personnel trained in mental health. Information from the MOHSW is that some RNs were trained out of country to carry our Mental Health Nursing activities prior to the war. There was however, one psychiatrist in the country.

### 2.4.3 Challenges/Issues with Human Resources Development in the Health Sector

The Challenges related to human resources development in the health sector are multi-dimensional and are greatly influenced by the conflict, socio-political and economic systems in the country. The current human resources development problems include:

#### 2.4.3.1 HRH planning & Financing

There is no current staffing norm and strategic HR Plan to guide recruitment and placement of staff. Postings are not guided by plans that indicate areas of needs/shortages. This leads to **Misdistribution** of the few skilled professionals in the system. They are distributed to the disadvantage of the rural and smaller facilities. The distribution imbalance tends to favour urban areas.

- **Misdistribution**

The total officially employed staff of MOH&SW as stated by the Rapid Assessment Report stands at 3,966 whilst those on part time basis are about 1004. The total staff therefore is 4,970 in both the public and private health sector. Of the 15 counties, Monsterrado county alone has about 1,473 representing 30% of total workforce. Again, counties such as Grand Kru, Grand Gbede, Grand Cape Mt., River Gee and River Cess which have lesser populations than Sinoe have more staff than Sinoe about seven times in some cases. Some clinics in Monsterrado county have more staff than the Hospitals in Sinoe and Grand Gedeh. Whereas a county Hospital had One RN and one CM, a clinic in Monsterrado county had three CMs and one RN.

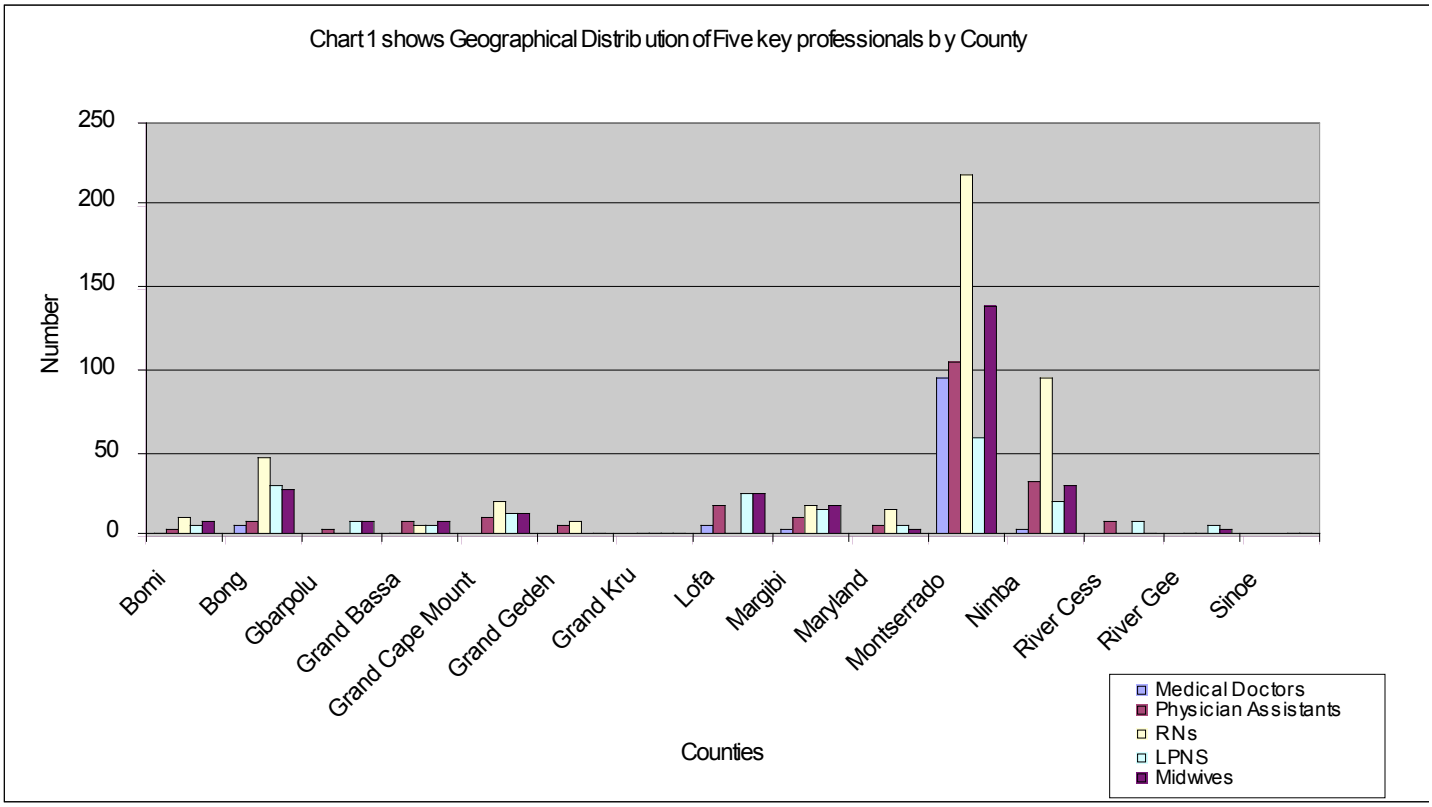
It is also worth noting that Nurse Attendants make up about 1091 (22.9%) of this figure while Registered Nurses (402) and Certified Midwives (297) form 21.7% and doctors make up 3.5%.

**Whereas there is acute shortage of Health professionals, Government has at the same time placed a ban on employment and therefore Health professionals who wish to be employed have their applications put on file.**
**The HRH working group is making a strong case for the MOHSW to put the employment of Health professionals on a high agenda so that Government can lift the ban on employment soonest.**

- ***Geographical location of posts and deployment of MOHSW personnel - October 2006***

The Chart below shows the geographical location of deployment of personnel. The table shows that the distribution of staff is at variance with the established posts. There is inequitable staff distribution favouring the urban areas. For instance, in the table, Monsterrado County had a negative gap for health personnel whereas Bong county has a gap of 248.

Regarding geographic differences in personnel: population ratios, the table shows that within the fifteen counties, there is one health personnel to every 773 people. However, in some counties such as Sinoe and Grand Gedeh, the margin widens to about one health personnel to 8,309.




- **The Ministry of Health and Social Welfare workforce - posts and personnel - November 2006**

Owing to the war, most documents were destroyed and the only documents which show the personnel in employment in the Health Sector are the rapid Assessment as shown above in table 1, the payroll and some professional Registers. In an attempt to ensure equitable distribution and quality service in line with the National Health Plan and policy, a rapid assessment was done in August to locate staff and their places of work. This would inform management about the Staffing situation and the Human Resource decisions to make regarding training and redistribution.

However, a more detailed audit of HRH needs to be carried out for a clearer picture.

**In addition to the results of the Rapid Assessment, the HR Working Group also visited a few facilities around Monrovia to study the staffing pattern. The group also collected staffing details from a few county Health Officers.**

- ***The Ministry of Health & SW workforce - gender and age distribution - November 2006***

The gender of Health personnel in the Hospitals and Counties could not be obtained, as information on personnel did not capture the gender, age and sex of personnel. Several reasons accounted for these missing items including the conflict. However, at central level, the group was able to collate information on gender by moving from office to office. Out of about 32 management positions, most management positions - 26(81%) were occupied by males. This reflects negligible numbers of females in managerial positions. Most programme heads were also males.

- ***MOH & SW Workforce Salaries***

Salaries for the Health workforce are set out by the Civil Service based on the salary scales with no regard to grade or position and with no progressional levels. For instance persons in very senior positions receive less salary than their subordinates. For now, salaries are poor and delayed. Salaries also differ between persons in the training institutions and service delivery points with same grades and education. For instance a Medical Officer in the training institution earned about USD 240 whereas their counterparts in the service delivery area earned between 61 and 167 USD (3,500 – 9.500 Liberian Dollars). Similarly, a nurse in a training institution earned about USD 70(4000 Liberian Dollars) and the Director of the Nursing Division earned 36USD (2,100Liberian Dollars). These rates were only adjusted in October while the salaries for October were paid in the middle of November.

- **Human Resources Information System (HRIS)**

A HMIS unit has been put in place currently at the central level and not fully functional. However, the capture of data was weak and this has been highlighted as one of the priority areas in the Health Plan. The personnel/Accounts unit had some data mainly for salary purposes but the data here was not consistent as some workers were paid for wrong positions. The personnel files of health workers were also kept at this unit.

Records Management was poor as files and other information were kept in loose files and placed on open shelves.
In addition to strengthening the HRIS, there is the need for the records management systems to be reviewed and updated.

Other sources of HRH data were from the professional registers and from the offices of the various technical heads. These were also not reliable since people leave without notifying these bodies.

The health personnel training database, was maintained by the Schools and not known by central level. The HRH Working Group had to request for such information for this exercise. This database is about students' enrolment and output and fees paid to undertake formal professional training for work in the health sector. This training is basically pre-service and post-basic. Some of the students overstayed their training period due to the interruption by conflict. For instance, medical students spent over nine years to complete the course.

**2.4.2.2 Training Programs and Training Issues**

Out of ten training institutions, five of these are located in Monsterrado county and the remaining five including one Private University in the other counties. Three of the Training institutions located out of Mosterrado have been closed down as a result of the war. The seven which are still training include the Medical School. Portions of these institutions were also destroyed during the conflict and do not have adequate capacities in terms of infrastructural facilities, logistics, funds and adequate trainers to train adequate levels of HRH for the health sector. There are proposals in the NHP to support these Institutions in terms of expansion, capacity building of trainers and provision of subsidies and allowances.

- **Training policy and principles**

Due to the conflict, all documents were destroyed and are being rewritten. There is a training policy regarding the selection of applicants into the schools.

- The responsibilities for the training of health workers were multisectoral – MOH&SW, Ministry of Education, Faith Based organisation and the Private sector. MOHSW was responsible for the training of Nurses, Physician Assistants and Certified midwives cadres in the three Public colleges – TNIMA, Martha Tubman etc. Faith Based Organisations were responsible for cadres trained in Mother Patern college and Cuttington University whilst the University of Liberia which trained Medical Doctors and pharmacists was managed by the Ministry of Education. External evaluation of the Medical School programme was by the fact that one lecturer was an external examiner and used such an experience to compare with the programme run in Liberia. In the case of the nurse cadres, the professional Association is responsible.

- **Teaching/learning facilities:** The infrastructural facilities in some of the schools visited were inadequate and dilapidated as a result of the destruction by the conflict. The medical school lacked residential accommodation, laboratories and transport for clinical work. The school had only five (5) full time lecturers and had not been accredited.

The curricula for the various courses were outdated, some of which were reviewed since 1998.

- **Recruitment and training of teaching personnel**

Trainee recruitment, selection, retention and employment

High school graduates with Division one to three were recruited into the Nurses, Social Welfare, Environmental Health and physician assistants' training schools. The process involved an entrance examination and a selection interview upon passing the written examination. To enrol in the medical school, all applicants should hold a BSc degree in biology, botany or chemistry.

- **Current training statistics**

Table 4.2.3- Number of MB Ch.B graduates and other cadres expected to Graduate and enter MOHSW employment, 2006 - 2010 from two Universities and two Colleges

| Year of Graduation | Expected number of MB ChB graduates | Pharmacist | Registered Nurses/ BSc. Nursing | CMs | Physician Assistants | Soc. Welfare | EHOS | Lab.Tec |
|---|---|---|---|---|---|---|---|---|
| 2006 | 13 | 7 | 104 | 37 | 41 | 16 | 18 | 13 |
| 2007 | 4 | 12 | 43 | 36 | 53 | 0 | 24 | 0 |
| 2008 | 12 | 11 | 49 | 38 | 43 | 13 | 0 | 0 |
| 2009 | 17 | 34 | 43 | | 42 | | | |
| 2010 | 20 | | | | | | | |
| 2011 | - | | | | | | | |

Current training issues include the following:

- Inadequate infrastructure in training institutions
- Weak capacity of trainers
- Lack of accreditation, outdated curricula and lack of standardization of programmes
- Lack of subsidies and other logistics to manage schools
- Lack of plans and policies for continuing education/fellowships
- Inadequate/Weak and under resourced professional/Regulatory bodies to monitor standards of practice.

#### 2.4.2.3 HR Management Systems

The whole Management systems broke down including that for HR management as a result of the conflict. Although there is commitment to rebuild the system, the current situation however, reveals ineffective and centralised Human Resources for Health management systems with no central HR Unit resulting in the following:

- Although the standing orders spell out guidelines/policies on personnel procedures especially postings/deployment, these were not widely known and thus resulting in skills mix deficiencies.
- No Incentives for health workers serving in 'difficult/hardship' locations or Under-served and less attractive areas. Salaries were poor and which led to internal migration of skilled staff to NGOs.
- No Systems for appraising staff Performance have been instituted yet after the conflict. This has been cited as a priority area to be addressed by the Health Plan. The form in the appendix of the Standing orders does not adequately address performance expectations of the employer.
- No adequate motivational and retention strategies to retain staff. Salaries and Incentive Packages are not attractive to motivate and retain staff. Attrition of qualified key staff especially doctors, nurses, and other staff to the urban areas, the private sector and NGOs has dominated the Public Health sector. This has resulted in shortages of these staff in service delivery areas as evidenced by the presence of only two Registered Nurses in one County Hospital with a bed capacity of 150.
- No holistic schemes and conditions of service with clear career development guidelines to inform staff on how to progress in their professions were also lacking.
- It has been widely stated that there was no formal system for identifying health workers for continuing education and further training and some people are picked for such facilities on 'whom you know basis'.
- Monitoring and supervision systems were weak

- **Attrition & Shortage of Health Staff**

As a result of the war, most health workers left the country but some were beginning to return. There was also internal migration among Health workers – from Public sector to the Private sector, NGOS and other international Organisations where they are assured of better pay packages. A case in point was the number of doctors working for these sectors as described above. Although there had not been any study to establish why,

the contributory factors to this phenomenon according to persons interviewed, were poor remuneration, unattractive/lack of incentive packages and working conditions among others.

**2.5 Regulatory Bodies**

Regulatory bodies did not enjoy any subvention from Government and therefore were resource constrained to perform their duties. There was an emphasis for the need to strengthen and provide funds for the Regulatory bodies to be able to adequately perform their functions.

**2.6 Decentralisation:**

There was also the thinking to decentraliise all functions including HR. to the Counties and this had been reflected in the National Health Policy and Plan. There is therefore the proposal to build capacities for Managers at the Central and decentralised levels to enable them carry out HRH functions.

**2.7 Contributory factors:**

Underpinning all these challenges was the conflict which destroyed all systems with the consequent poor remuneration offered to skilled professionals who worked in the public health sector. The poor working conditions and environment among others also contributed to the situation. Financial constraints made it difficult for the government to provide adequate infrastructure, equipment and incentives that would motivate and retain staff. In spite of these challenges, the health sector was determined to rebuilding the system with the view to achieving better health outcomes for the people living in Liberia.

**2.8 The private sector health workforce – November 2006**

As stated earlier, the Rapid Assessment report did not disaggregate the Private sector health workforce from the public sector and so it is assumed that the total workforce numbers cited in the report was for both sectors. The HRH WG however made an effort to disaggregate the numbers but this was also not possible due to time limitation. The determination of the requirements based on the current information is therefore intended for both sectors.

## 3.0 Planned Change - HRH Plan

### 3.1 Introduction

As part of the first strategy of the HRH priorities as outlined in the National Health Plan and Policy, this section of the workforce plan focuses on how to plan to address some of the challenges. The plan is concerned with determining the numbers of staff positions required to provide an adequate level of service (the "Required posts"), for the various levels within the health sector using the current functioning facilities, Basic Package of health Services, WHO Hospital staffing model as the main determinants for this initial 5-year plan. In addition, the plan was also guided by international and Regional staffing models. Above all, Liberia specific situation was also applied and contingencies made for planned rehabilitation of facilities.

### 3.1.1 Scope of the plan

The scope of this plan is to stipulate staffing targets for each of the ten major categories of health personnel, (doctors, nurses, Midwives, pharmacy personnel, Physician Assistants, Social workers, laboratory personnel, Radiology personnel, Environmental Health Officers) and dental technicians taking into consideration the following:

- Current functioning facilities
- Basic Package of Health Services
- WHO Hospital staffing model
- The population growth
- Current available staff and staffing level,
- Likely Attrition from the workforce, and
- Outputs from training programmes and other sources and
- The economic situation of the country

The plan also states how recruitments should be managed in order to match staffing requirements (at least for those courses lasting 3 years or less) with the number of staff actually employed. Indications of the costs of staffing the service are also provided. Due to the time span of the plan, current training statistics from training institutions are the main source with proposed recruitment of expatriate doctors to meet the requirements by 2011.

### 3.2 HRH Planning Strategies and Targets

In developing this plan, several factors have been taken into consideration

### 3.2.1 Organisational arrangements for Human Resources Planning (HRH) planning

The Deputy and Assistant Ministers of the Planning, information and Research Bureau are responsible for the coordination of all activities related to HRH planning. However, some technical heads managed and handled some personnel issues. Nevertheless, the Assistant Minister and the Human Resources Working Group were responsible for the preparation of this national HRH plan, and acted as the secretariat for the HRH Planning Group.

Composition of the HRH Planning Group was as follows:

- Director of Nursing Services - Chairperson
- Director of Pharmacy Services- Member
- Director of Physician Assistants - member
- Dean of School of Nursing, Cuttington University
- Assistant National Coordinator, PHC

### 3.2.2 Process:

### 3. 2.2.1 Process used to set Human Resources Requirements Targets:

To address the challenges of HRH the strategic interventions as outlined by the NHP, is the development of a short term plan as a first step to address the situation. This plan made use of the current functioning facilities, Basic Package of Health Services (BPHS), available staff and interim staffing standards**,** which were developed ensuring skills mix, based on the BPHS for the various levels, standards in the sub-Region and Hospital staffing model from WHO.

The development of the draft HRH plan went through a series of consultations. First, the HRH working group reviewed documents including the situation analysis and the Rapid Assessment data on current staff distribution patterns, visited a few facilities to observe and review workloads and liaised closely with the County Health Officers(CHOs) of some Counties, Heads of facilities, training institutions and professional classes. In addition, international standards of staffing and comparison with staffing patterns of countries in Sub- Saharan Africa (such as the Gambia, Ghana, Sudan etc.) also guided the process. The staffing norm was developed with the WHO staffing model for staffing hospitals as a guide.

For the Teaching Hospital, the following additional information was used in determining the appropriate staffing levels.

- Average bed capacity = 300
- Average bed utilization rate = 79%
- Nurse-patient ratio = 1:3
- Average daily bed occupancy of = 79
- High dependency patients
- Referral point

The following staffing pattern was agreed by the HRH WG based on the BPHS, the functioning and possible rehabilitated facilities. The staffing pattern took into consideration the services that would be rendered at the various levels and skills mix. During the time of the plan, most facilities were not operating at full capacity due to the destruction of infrastructure and lack of key professionals. The purpose of the staffing norm was to ensure that all functioning facilities got the full complement of skills mix to be able to provide the BPHS. The group also factored in possible rehabilitation within the planned period and increased workloads.

Based on the assumptions above, the following staffing pattern was determined.

**Teaching Hospital – JFK**

As a teaching Hospital, at least 96 doctors are required based on the services provided and inpatients of which 20% would be specialists/consultants. However, only 18 were specialists with no specialist in Paediatrics, Neonatology, Anaesthesiology, Dermatology and other critical areas.

For the total doctor population in the norms for County hospitals, a total of 45 doctors are required based on BPHS with average daily OPD attendance and inpatients.

Using these standards, the staffing targets shown in the table below were agreed upon with the Senior Managers and Heads of Training Institutions as providing an appropriate cadre of medical personnel (about 125 doctors plus 71 in the Private sector) to staff a comprehensive Public medical service and a private sector covering a population of 3,200,000 people.

Based on these factors and the assumptions outlined above, the doctor requirements for Liberia by the year 2011 (population: 3,602.880), would stand at 221 and which would translate into a ratio of 1:16,303 and which is a drastic improvement on the current National Doctor population ratio of 1:26,066. However, this ratio still falls below the some sub Regional ratios of 1: 10,000 (Ghana), 1: 8,000 (Gambia) but would be almost equal to Togo (1: 16,667) and better than Uganda which has a doctor population ratio of 1: 20,000.

**TOTAL REQUIRED STAFFING PATTERN PER FACILITY USING BPHS & INTER REGIONAL COMPARISONS& WHO MODELS**

| Category of Personnel | Health Clinic | Health Centre | County Health Office | 1st Referral Hosp | 2nd Referral Hosp | Teaching Hosp | Central Level | Total |
|---|---|---|---|---|---|---|---|---|
| Consultant | | | | | 4 | 24 | 2 | **30** |
| Resident/Spec | | | | | | 24 | | **24** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| MD –Gen. | | | 15 | 45 | 64 | 48 | 10 | **182** |
| Dentist | | | | 15 | 12 | 8 | 1 | **36** |
| Dental Tech | | | | 15 | 8 | 8 | | **31** |
| Physician Asst | 286 | 100 | 15 | 45 | 24 | 12 | 10 | **492** |
| Reg. Nurse | | 50 | 15 | 210 | 120 | 120 | 26 | **541** |
| Cert. Midwife | 286 | 150 | - | 120 | 72 | 42 | 4 | **674** |
| Mental Health Nurse | | | | 9 | 3 | 3 | | **15** |
| Nurse Aide | 286 | | | 180 | 64 | 34 | | **564** |
| Social Worker | 286 | 50 | 15 | 30 | 8 | 3 | 14 | **406** |
| Pharmacist | | | | 15 | 8 | 10 | 5 | **38** |
| Pharmacy Technician | | | | 30 | 12 | 10 | | **52** |
| Dispensary Assistant | | 50 | | 30 | 12 | 10 | | **102** |
| Lab.Te'ologis/T'cian | | 50 | | 60 | 24 | 12 | 4 | **150** |
| Lab, Asst | 286 | 30 | | 30 | 16 | 8 | | **370** |
| X-ray Tech | | | | 30 | 16 | 10 | | **56** |
| Human Res. Manager | | | 15 | | 4 | 1 | 3 | **23** |
| Health Ser. Adm. | | | 15 | 15 | 4 | 2 | 3 | **39** |
| Health Economist | | | | | | | 2 | **2** |
| Statistician | | | | | | | 2 | **2** |
| Biostatistician | | | | 15 | 15 | 3 | 1 | **34** |
| Physiotherapy | | | | 15 | 4 | 4 | | **23** |
| Dietary/cooks | | | | 30 | 12 | 12 | | **54** |
| Envir. Health Offr | | 50 | 45 | 15 | 8 | 3 | 15 | **136** |
| Laundry | | | | 3 | 8 | 13 | | **24** |
| Recorders/Exec Officer | 286 | 1 | 1 | 4 | 6 | 8 | | **306** |
| Security/Cleaners | 286 | 50 | 30 | 450 | 160 | 50 | 29 | **1055** |
| **Total Personnel** | **2002** | **581** | **166** | **1411** | **688** | **482** | **131** | **5461** |

**Guideline for Allied Health Staff:** The guideline for Allied Health Staff was determined by same factors used for Secondary level facilities. These include, Laboratory, Radiology, physiotherapy/Rehabilitation, dietician, records and revenue collecting staff. For all of these staff, the patient – related workload undertaken by the facility, primarily determined workload.

**Radiographer** – One Radiographer to every functioning X-ray machine (WHO) or (15 minutes for taking x-rays and 10 minutes for development from Shipp et al)

**Laboratory Technologist;** 1:*20 average daily average OPD attendance plus inpatients (WHOHospital Staffing model)*

**Pharmaceutical Technologists**: 1: 30 outpatients (WHO model). Although the guideline stipulates this figure, the training of this cadre is not yet available whilst the pharmacy training is on-going with encouraging figures. The guideline would therefore use the reverse until the training of this cadre is started.

**Pharmacist**

**1:5 wards in provincial hospitals (Shipp et al)** or 1: 4 pharmaceutical technologists (WHO model)

Following the recommendation by Shipp et al that one pharmacist should manage five wards in a hospital one pharmacist is proposed for the County hospitals and this number can be adjusted where there are more wards.

**Physiotherapist** 1: 50 inpatients beds used

**Social workers** 1: 100 inpatients beds used

**General Support Staff**
According to WHO recommendations as by Shipp et al, the following principles guided the determination of the support staff. This category includes labourers, orderlies, drivers, laundry, cooks and others.
**Cook** – 1 per 30 inpatients
**Laundry** – 1per 20 inpatients
**Drivers** – 1 per functioning vehicle
**Labourers/Orderlies** -depending on the size and service areas of the facility
The precise number of staff therefore required could be decided locally.

Having determined the baseline establishment required for the current population, projection of future staffing requirements were made, taking into account such factors as the current functioning facilities, the BPHS, expected population growth rate, and planned changes in the amount (Rehabilitation of existing facilities e.g mental health facilities), range and level of services to be provided. Below is a table of functioning Health facilities.

**Table 3: Lifted from the Rapid Assessment Data on Functioning Facilities**

| County | Dist | Population | Hosp-itals | Clin-ics | Health Centers | Total | Pop/HF |
|---|---|---|---|---|---|---|---|
| Bomi | 4 | 96,480 | 1 | 14 | 1 | 16 | 6,030 |
| Bong | 8 | 522,049 | 2 | 25 | 2 | 29 | 18,002 |
| Gbarpolu | 5 | 109,000 | | 12 | 2 | 14 | 7,786 |
| Grand Bassa | 7 | 280,000 | 3 | 17 | 2 | 22 | 12,727 |
| Grand Cape Mt | 5 | 71,288 | | 18 | 2 | 20 | 3,564 |
| Grand Gedeh | 6 | 74,203 | 1 | 12 | | 13 | 5,708 |
| Grand Kru | 5 | 56,487 | | 8 | 2 | 10 | 5,649 |
| Lofa | 6 | 233,889 | | 31 | 9 | 40 | 5,847 |
| Margibi | 4 | 261,068 | 1 | 22 | 4 | 27 | 9,669 |
| Maryland | 6 | 149,329 | 1 | 9 | 4 | 14 | 10,666 |
| Montserrado | 4 | 852,148 | 6 | 44 | 10 | 60 | 14,202 |
| Nimba | 6 | 607,000 | 3 | 41 | 6 | 50 | 12,140 |
| River Gee | 6 | 56,914 | | 11 | 4 | 15 | 3,794 |
| River cess | 6 | 86,733 | | 17 | 1 | 18 | 4,819 |
| Sinoe | 10 | 91,400 | | 5 | 1 | 6 | 15,233 |
| **Total** | **88** | **3,547,988** | **18** | **286** | **50** | **354** | **10,023** |

### 3.2.3 Model used to determine requirements/targets
The model used for projecting the workforce requirements is the WHO Hospital staffing model and use of some targets method assumptions. This method as described by Hall[3], "projects population size, characteristics, and priority service needs and demands, sets targets for either numbers of services to produce, or numbers and types of health facilities and services and calculate workforce required to satisfy target year assumptions." The method was used due to the fact that statistics were not reliable as a post conflict situation. It was therefore used to ensure equitable distribution in the interim while steps are taken to review and develop a comprehensive plan.

### 3.3 Assumptions relating to health workforce planning
The under-listed are the general assumptions guiding the workforce plan. However, there would be slight variations with the individual categories of health cadres.

[3] Draft Guidelines for Human Resources for Health Policy and Plan Development at Country Level, WHO, AFRO, 2004

### 3.3.1 Population and population growth

The estimated population of Liberia according to the draft National Health Plan in November 2006 is **3,200,000** with an annual growth rate of 2.4%. If this growth rate is maintained then the estimated population of Liberia in the year 2007would be **3,276,800**. It is assumed that the population to be served will continue to increase at an annual rate of 2.4 per cent throughout the planning period. Thus by the end of the year 2011 the projected population would stand at **3,602,879** persons, an increase of **402,879** (13. per cent) on the number at the beginning of the year 2006.

### 3.3.2 Economic growth

The draft National Health Plan describes the Liberian economy to be making a modest recovery, led mainly by donor-related inflows and a gradual improvement in security in rural areas. GDP at current prices amounted to US$574.5 million in 2005; real GDP growth was 9.6%, with a per capita GDP of US$191.5. The inflation rate was 11.1% in the 2005. The Economic Planning report cites the economic growth rate around 2.6%

### 3.3.3 Proportion of government budgets allocated to health

According to the Budget bureau, the total Government budget for the 2006 was USD129 million. Out of this 7% (representing 9 million) was allocated to MOH&SW. However, Management feels and are making proposals for the budget for Health to be increased to 15% in 2007. The current health expenditure per capita per annum **is 3 USD.** It is expected to increase by a wider margin if Government budget goes up and the proposal of 15% by the Health sector is heeded to.

### 3.3.4 Proportion of government health budget allocated to personnel emoluments

Staff salaries and other emoluments accounted for 55% of total health budget in 2006 and was expected to increase in 2007 depending on the total health budget.

### 2.3.5 Attrition of Health Workforce

There is internal migration within the health sector especially skilled staff such as Nurses, Midwives, Doctors and Physician Assistants to the private health sector due to low remuneration as a result of the conflict. Some also left the country because of the conflict. The rates of migration can not be estimated due to the displacement over the years.

### 3.3.6 Failure to complete Course

Statistics from training institutions indicate varying drop out rates of students to complete the courses of study. The percentage of students' failure to complete course ranges from 8% (for pharmacists) to as high as 50% for medical students.

Therefore the assumption of a percentage of some students not completing their studies would also be considered for the individual categories of cadres.

### 3.3.7 Retirements

According to the members of the HRH WG, the retirement age for Public Servants in Liberia is 65 years.

However, depending on the state of one's health, one may be requested to go voluntary retirement earlier than this age. A certain percentage of retirements for the various professionals would also be assumed during the projections since ages of most cadres are not known.

### 3.3.8. Death and Invalidity Rate

It is difficult to establish the death rate for health professionals. The general death rate for the people of Liberia is also not known and so an assumed death rate was used for the various categories of death cadres to be projected.

### 3.3.9 Expenditure on health workforce for the Private Health Sector

The expenditure in the Private sector for the health workforce is not fully known since the Rapid Assessment Report did not present anything on the sector. This sector however, employs a sizeable number of total health workforce, which, unfortunately was not known. It is assumed that non-government provision of medical, dental, pharmaceutical, and other health services currently offered in Liberia will grow rapidly. Areas of growth will

include establishment of private hospitals/clinics, sale of pharmaceuticals through the retail market, clinical support services such as laboratory and medical imaging services. It is also assumed that the majority of the population in the rural areas will make full use of Traditional/Complementary medicine.

The impact of such developments on staffing and training requirements will be assessed in the reviews of this plan and a more comprehensive one developed.

### 3.3.10 Targets

The key health professionals' requirement targets for the health sector determined in this plan for the five years is based on the Human Resources priorities outlined in the National Health Plan, the Basic Package of Health Services and the felt gap by the CHOs outlined in the Rapid Assessment report.. However, some of the targets may not be achieved within the five-year period as the training of most categories take between 3 and 5 years. Therefore there would be the need to review and develop a long term strategic plan in line with the services provided and their utilisation, epidemiological, economical factors as well as the size of the population.
**It is also recommended for the Health Policy makers to institute plans to rapidly develop a middle level cadre such as physician Assistants in place of doctors and Health care Assistants in place of nurses as a stop gap measure since the former take shorter periods to train.**

Although the commission on macroeconomics and health[4] recommends rates for some professionals such as doctors and nurses (a doctor population ratio of 1:2,500 and nurses 1: 2222), this target would be quite difficult for Liberia to achieve within the five years coupled with its numerous reconstruction efforts. Thus a target of 1:16,327 for doctors (an increase from 122 to 196) and 1: 5000 for Registered nurses (an increase from 471 to 655) and 1: 6000 for midwives( an increase from 355 to 564 ) by the year 2011 is the target of this plan.

### 3.4.1 Medical Officers, Requirements, Staffing and Training

The total number of doctors excluding dentists in the health sector is 122, of which 71 (58%) are in the private sector. Again, only 87are Liberian Nationals. With the current estimated population of 3.200,000, the current doctor population ratio in Liberia is **1:26,230**. However, taking only the **Liberian Nationals,** the ratio is **1: 36,781.** The staffing norms, which were developed using the current Basic Package of Health Services and current functioning health facilities, stipulate a total requirement of **196** doctors for the health sector. With this figure, the doctor population ratios will improve from 1: 26,230 to 1:16,327. The target doctor population required for the country by the year 2011 with an estimated population of 3,602,880 would be **221**. With these target figures, there is a current deficit of 74 doctors if the expatriate doctors are included. With the exclusion of the expatriate doctors, the current deficit would be **109** currently and **99** to reach the target of **221** in 2011.However, using the upper limit of total doctor/population ratio as recommended by the World Bank of between1:1666 and 1:2500, Liberia currently would require **1,280** doctors.

The following table presents the MOHSW medical officer staffing situation as in November, 2006.

**Table: 3.4.1 Liberia - Medical Officers, November 2006**

| Designation of position | Number of posts occupied | Current Requirements/Norm | Requirement by 2011 |
|---|---|---|---|
| Director of Medical Services | 1 | 1 | 1 |
| Deputy Director of Medical Services | 1 | 1 | 1 |
| Heads of programmes | 10 | 10 | 10 |
| Consultants | 14 | 16 | 20 |
| Senior Registrars | | 3 | 12 |
| Registrars | 12 | 13 | 8 |
| Principal Medical Officers | | 8 | 11 |
| Senior Medical Officers | 6 | 12 | 10 |
| Medical Officers | 7 | 48 | 66 |
| Intern doctors | 9 | 15 | 28 |
| Private sector & Faith Based Organisations | 71 | 76 | 82 |
| **Total** | **122 + 9 Interns** | **196+15interns** | **221+28interns** |

[4] Improving Health, Nutrition and population outcomes in Sub-Saharan Africa – The role of the World Bank, 2005

### *3.4.2* MOH&SW *medical cadre development plan, 2007-2011*

In consultation with medical staff and HRH working group, the following staffing standards were agreed. The figures below were arrived at using the assumptions outlined earlier in addition to the following.

- Basic Package of Health Services
- Number of functional facilities
- WHO Hospital staffing model
- The unique needs of the health sector of Liberia
- Recommendation from the World Bank (ibid 2005) and Shipp et al (World Health Organisation) which outlines the developing world doctor: population ratios of between 40 to 60 physicians per 100,000 population i.e 1:1,666 and 1: 2,500 plus studies by Nmadu (1998) and the recommendation from the World Development Report of (ibid, 1993), which gives the minimum specialists percentage of total physicians to be 25%.

**Projection of Staff Supply**

Tables 3.4.2 through 3.4.10 provide details of projected increases in the pre-service training capacity for key health professions and other recruitments in the country.

**Table:3.4.2 MOH&SW - Target establishment for Medical Officers, 2011**

| Doctors | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| **Population** | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,880 |
| | | | | | | |
| Total number of doctors required for total health sector | 196 | 200 | 205 | 210 | 215 | **221** |
| **Total Doctors at hand and output from Medical school** | 122 | 126 | 131 | 136 | 141 | **156** |
| **Expatriate Doctors Required** | 35 | 41 | 48 | 55 | 61 | 67 |
| **Nationals (status quo)** | 87 | 91 | 96 | 101 | 106 | 121 |
| **Current Ratio (Nationals only)** | **1: 36,782** | **1:36,008** | **1:,34,953** | **1: 34,020** | **1:33,193** | **221** |

Each of the following sub-sections 3.4.2 to 3.4.10 provides information regarding the requirements, supply and training arrangements for one category of health personnel in the health workforce. There are tables which provide estimated staffing and training costs.

It should be noted that the projections presented in this plan are based on information that was available in November, 2006. As mentioned earlier in this document the plan must be regularly (annually) reviewed in order to incorporate changing policies and needs regarding the workforce situation.

**Table 3.4.3: Required posts for Doctors by 2011**

| Department or Service | Required posts, 2011 |
|---|---|
| Medicine | 6 |
| Surgery | 6 |
| Obstetrics and Gynaecology | 6 |
| Paediatrics | 6 |
| Anaesthetics/Intensive Care | 2 |
| Neurosurgeon | 1 |
| Otolaryngeal (ENT) | 2 |
| Ophthalmology | 3 |
| Dermatologist | 2 |
| Pathologist | 2 |
| Orthopaedic Surgeons | 2 |
| Psychiatry | 2 |
| - Maxillofacial/Dental Surgeons | 2 |
| Urologists | 2 |
| Laboratory medicine | 2 |
| Others | 2 |
| Medical Officers & Dental Surgeons | 173 |

| | |
|---|---|
| **Total** | **221** |

The basic clinical team in a major specialty according to recommendation from World Bank[5] states that at most 25% of all physicians may comprise specialists in developed economies and much lower in developing world. Expert opinion in Liberia, however, views this to be too high. . Based on the two opinions, 15% was used as the average value and thus the above targets were arrived at.

In the smaller clinical specialties and sub-specialties, the team consists of one or two specialists with support from general medical officer, resident medical officer or intern.

### *3.4.4 Losses from the medical cadre*

- **Retirements:** The ages of doctors were not known and so the assumption of one retiring every five years was used. The doctor cadre was quite young except for the Nationals already in the system and whose ages were not known. It was assumed that the number of retirements would be minimal during the planning period.
- **Attrition:** Some may opt for private practice after some years – 5 years after graduation. That will then be after serving the mandatory period of three years after training.

Indications from the medical school are that during training in the Medical school currently, about 50% of students are lost. For instance out of a number of 26 students enrolled eight years ago, only twelve are expected to complete the course. However, there is hope that when conditions improve, this drop out rate would reduce.

At the beginning of the year 2006 Eighty-Three (83) Liberian Nationals were pursuing the M B. Ch.B course in the Medical school of Liberia.

**Table 3.4.4 Liberia - number of MB Ch. B graduates expected to Graduate and enter MOHSW employment, 2006-2010**

| Year of Graduation | Expected number of MB ChB graduates |
|---|---|
| 2006 | 13 |
| 2007 | 4 |
| 2008 | 12 |
| 2009 | 17 |
| 2010 | 20 |
| 2011 | ? |
| **Total** | **66** |

The MOHSW Medical Officers table 3.4.5 at the end of this subsection shows the impact of the under-graduate medical training program and hiring of expatriates on the numbers of medical officers likely to be in the MOHSW medical cadre from year to year.

### *3.4.5 Medical postgraduate training*

As at 2006, there was no facility for postgraduate medical training except for Public Health. All the postgraduates Medical doctors are trained out of country. In total, there were only about 21 specialists and three of whom were in private practice. However, specialties such as Paediatrics, Neonatology, Dermatology, Neurosurgery, and laboratory medicine among others did not have any specialists. Currently, Public health physicians manage the Paediatric Department of the Teaching Hospital.

To ensure that there will be adequate numbers and range of specialists on the staff to provide specialised supervision and training for medical students and future post graduate training is and likely to be the greatest challenge confronting the medical training programme over the next 5 years of this plan.

This plan recommends that some of the General practitioners could be assisted with scholarships during the plan period to undertake medical postgraduate training out of country. For the period of this plan, six (6) persons could be trained in various specialities including paediatrics.

However, depending on the economic performance of the country, the country can either increase or decrease the number of specialists to be trained during the planning period and enter into bilateral agreements with Governments to recruit expatriate specialists.

### *3.4.6 Projection of future* **MOH&SW** *medical officer staffing and staffing cost*

The projection of staffing numbers, student intake and output and salary and training costs shown in Worksheet 4.2.1 MOHSW Medical Officers at the end of this sub-section is based on the following assumptions:

[5] World Bank Report 1993 'Investing in Health: World Development Indicators'

| | | |
|---|---|---|
| Actual number of Doctors Available | - | 122 of which 87 are Nationals |
| Required Doctors as at 2006 | - | 196 |
| Current Population estimate | - | 3,200,000 |
| Population growth rate | - | 2.4% |
| Number of Doctors/population | - | 1:26,230 |
| Current ratio as by norms | - | **1:16,327** |
| Possible ratio by 2011 | - | **1:16,327** |
| Exit due to resignation | - | 1 every five years |
| Exit due to death | - | 1 every eight years |
| Exit due to retirement | - | 1every five years |

50% of medical students fail to complete the MB. Ch.B course
Expatriate doctors would be recruited and the current expatriate staff would continue to be in the system to the end of the plan period – 2011.

**How to arrive at the target Doctors by 2011**

| | |
|---|---|
| Target for 2011 | **221** |
| Currently available | 122 |
| Output from medical school up to 2010 | 66 estimated |
| Deficit | **33** |

Five years to train medical doctors

Since entrants in 2007 would not complete the course before the end of the plan, it is recommended that expatriates doctors be recruited on yearly basis to make up the needed numbers.

### 3.4.7 Projection of future MOH&SW medical officer staffing and staffing cost

The cost of training covers tuition and allowances provided for health professionals. Cost of training a doctor in the University of Liberia as agreed at the consensus building meeting is about USD 5,000/student per year for five years would be USD 25,000. Therefore the cost of training and recruitment of extra doctors to improve doctor population ratio is as follows:

**Table 3.4.7: The cost of training & recruitment of doctors to meet requirements (USD)**

| | Training of students | | Recruitment of Expatriate Doctors | |
|---|---|---|---|---|
| **YEAR** | **Number** | **Cost of training/student/year** | **Number** | **Cost of salaries** |
| **2007** | 13 | 5,000/student/year | 7 | 30,000/doctor/year |
| **2008** | 4 | " " | 7 | |
| **2009** | 12 | " " | 7 | |
| **2010** | 17 | " " | 6 | |
| **2011** | 20 | " " | 6 | |
| **TOTAL** | **66** | | **33** | |

**Proposals**

To be able to meet the recommended total doctor population/ratio of 1:2,500 as for developing countries, the following are proposed by the working group.
Other means of recruitment should be sought in the interim whilst efforts are made to rehabilitate and expand the facilities of the Medical School.
The training of the PAs should be increased to complement the shortage of the doctor cadre since their training is of a shorter duration.

- Review salaries and incentive packages to attract, retain and sustain doctors in the sector.
- Support the medical school with subsidies, infrastructure and logistics
- Train more doctors to support teaching at the medical and physician assistant schools
- Enter into bilateral agreements with other Governments to assist with doctors on contractual basis.
- Consider expatriate recruitment especially the specialists to assist in training medical students
- Introduce specialists outreach programmes to county Hospitals to treat some of the diseases
- Draw an Urgent recruitment plan to re-engage all part time doctors who, according to the Rapid Assessment are about **46** in number.
- Rehabilitate and expand Medical school
- Train as a matter of urgency six clinical specialists including paediatricians/Surgeon and one specialist each for the other departments which lack specialists.

**Among factors which may minimise future attrition from this cadre are the improvements in the training systems, introduction of 2- year structured internship programme, changes in the medical officer salary and career structures and the development of a well-organised and properly implemented programme to enable medical graduates to gain formal specialist qualifications. A structured programme of continuing professional education directed to the up-dating and extension of medical officers skills, covering doctors in both MOHSW and the private sector.**

## 3.5 Nursing Service personnel - requirements, staffing and training

### *3.5.1 The* MOH&SW *nursing cadre, November 2006*

The MOHSW nursing cadre comprises Registered nurses (RNs) Registered Midwives, Licensed Practical Nurses (LPN) Certified Midwives (CM) and Nurse Anaesthetists. Under the Chief Nursing Officer, these groups of posts are recognised although some may be in the central level, County offices, hospitals, Health Centres, community clinics or the school. The following table shows the MOHSW nursing cadre actual staffing in November 2006. For this plan, the planning group regard RNs and LPNs as general nurses and classifies the CMs separately.

According to the Rapid Assessment data (2006), the total number of all the Nursing categories in the health sector including Nurse Anaesthetists was 965, of which the disaggregation is as follows. The office of the Director of Nursing Service also gave the same figure.

Nurse Anaeshetists - 40
Registered Nurses - 402
Certified Midwives - 297
Licenced Practical Nurses - 214
Registered Nurse/CM - 12

With the population estimated population at 3,200,000 (National Health Plan, Nov. 2006), the current total Nurse - Population ratio in Liberia is 1:3,316. Excluding the Nurse Anaesthetists, it would be 1:3,459. The current HRH staffing norms, which were developed using the BPHS and functioning facilities stipulate a total requirement of **1,185** nurses for the health sector. With this figure, the nurse population ratio will improve from 1: 3,459 to 1: 2,700 but with a current shortfall of 220 nurses. The shortage is more skewed towards the CMs. The target nurse population ratio required for the country by the year 2011 using the current requirement and population growth rate (estimated at 3,602, 880) would be **1:1,334**.

**Table 3.5.1: MOH&SW - Nursing cadre - posts and staffing, November 2006**

| Designation of posts | Currently occupied posts | Norm |
|---|---|---|
| **Registered Nurse Posts** | | |
| Director of Nursing | 1 | 1 |
| Office of Director of Nursing | 25 | 25 |
| Nursing Directors of Hospitals/Deputies | 18 | 36 |
| Nursing Managers, County Offices | 3 | 15 |
| Registered Nurse, Health Centres & Hospitals | 332 | 402 |
| Nurse Educators, Schools of Nursing | 30 | 35 |
| *Sub-total Registered Nurse posts* | ***454*** | ***541*** |
| Licensed Practical Nurse posts | 214 | 0 |
| Certified Midwife | 297 | **644** |
| **Total nursing cadre** | **965** | **1,185** |

### *3.5.2 Nursing Service development and staffing targets*

It was agreed by the HRH group that in order to address the high maternal and infant mortality rates, there should be accelerated development of Nurses and Midwives. The drastic increase should be more for the CMs. However, the following challenges as outlined by the Heads of training Institutions need to be addressed.

- Inadequate infrastructure and logistics
- Poor remuneration of trainers
- Lack of subsidies

- Inadequate numbers and limited capacities of trainers.

The proposed figures were guided by the BPHS, WHO staffing model and the developing world averages for staffing and represent minimum staffing. These have been adopted as the base staffing targets to be used for the 5 years projections as shown in the table above.

**Table 3.5.2 MOH&SW – Nursing service staffing targets, 2011**

| | | Staffing Requirements | | | | | |
|---|---|---|---|---|---|---|---|
| **Population** | | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| **Nurses** | **Actual staffing, 2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Registered Nurses (RN) | **454** | **541** | **554** | **567** | **580** | **595** | **609** |
| RN:Population Ratio | 1:7,729 | 1:5,915 | 1:5,915 | 1:5,915 | 1:5,915 | 1:5,915 | 1:5,915 |
| | | | | | | | |
| Certified Midwife | **297** | **644** | **659** | **675** | **691** | **708** | **725** |
| CM: Pop. Ratio | 1: 10,774 | 1:4,969 | 1:4,969 | 1:4,969 | 1:4,969 | 1:4,969 | 1:4,969 |
| | | | | | | | |
| LPN | 214 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **965** | **1,185** | **1,213** | **1,242** | **1,272** | **1,303** | **1,334** |

### *3.5.3 MOH&SW nurse training programs*

**(a) 3.*5.3 Training of Registered Nurses***

As noted earlier on, there have been difficulties in recruiting more entrants to this course due to lack of space, adequate teaching staff, logistics and funding.

Thus, the expected attrition arising from migration overseas and other causes mentioned above has been added to the possible exit of some RNs and CMs to the local private sector.

### *3.5.4 Projection of nursing service requirements, staffing and training – Registered Nurses*

The projection of staffing numbers, student intake and output, salary and training costs are shown below for Registered Nurses at the end of this sub-section and are based on the following assumptions:

- Retirement of Registered Nurses on reaching 65th birthday – 1every year
- Attrition Exits due to migration, resignations– 2% per year
- Exits due to death, invalidity - 1 every 3 years
- Maximum number of new student intake - 80 per year
- All nursing school graduates enter Health sector upon graduation
- Percentage of new student intake not completing the training course - 5%
- Other intakes e.g nurses returning home from abroad – 60 during the period
- Nurses likely to return on contract for five years – None during the period

**How to arrive at the RNs target by 2011**

| | |
|---|---|
| Target for 2011 | **609** |
| Currently available | 454 |
| Output from two schools up to 2010 | 105 estimated |
| Deficit | **50 divide by 2 intakes = 25** |

Three years to train Registered Nurses

To make provision for 5% failure to complete course, as has been indicated by trainers of Nursing schools in Liberia, then the intake for 2007and 2008, would have to be **58 added on to the two normal intakes to be able to meet the target of 609 RNs in 2011.** This appears possible as the two Schools can accommodate a total of 80 students in a year. It is hoped that some of the nurses trained in the University of Cuttington would also opt to join the Health sector of Liberia. If this happens, the target would be exceeded by 2011.

At the current capacity of training institutions, a total of 233 nurses and 200 midwives would be trained by the year 2011 and the estimated cost of training one professional nurse as obtained from the school currently is USD2500 and USD1500 for CM. The target of 725 for midwives would not have been met by the end of the plan period.

**Table 3.5.3 showing the intakes and cost of training in USD of RNs, Midwives and Tutors to meet requirements**

| | General Nurses | Certified Midwives |
|---|---|---|
| **YEAR** | | |

| | | |
|---|---|---|
| **2006** | 73 | |
| **2007** | 80 | |
| **2008** | 80 | |
| **2009** | **-** | |
| **2010** | **-** | |
| **2011** | | |
| **TOTAL** | **233** | |

***b. Training of Certified Midwives (CM)***

The CM training course is of 2 years duration. Most of this time is spent on formal study with three months practical work. There has been no difficulty in recruiting suitable entrants to this training program, and none is anticipated.

***3.5.5. Further Projection of nursing service requirements, staffing and training – Certified Midwives***

The projection of staffing numbers, student intake and output, salary and training costs are shown above. Certified Midwives at the end of this sub-section is based on the following assumptions:

Exit- resignation loss rate - 1.5 per cent per year
Retirement at age 60 years - 1 per year
Losses due to death, invalidity, dismissal etc - 1 every 3 years
Trainee failing to complete course - 2% per intake
Nurses likely to return on contract for five years - None

***3.5.6 Nursing personnel in the private sector***

Data on nursing personnel who work in the private sector could not be readily obtained. However, as this sector expands, there is likelihood that experienced nurses would move from the government service. For example, the opening of hospitals with more specialist services. This would call for the employment of a number of nurses, particularly those with specialised knowledge and skills.

**3.5.7 Proposals**

In order to increase numbers, maintain high standards and skills within the nursing cadre to be in line with international standards, the HRH WG proposes the following to be able to achieve these:

- Strengthen the Regulatory bodies to be able to review, update and standardise curricula for all institutions
- Urgently expand and rehabilitate the Schools' infrastructure as well as the capacities of tutors and lecturers
- Train more tutors and more nurses at the University in specialist post basic courses who, on their completion from training will

  provide both clinical and teaching services in their areas of specialisation . It is proposed that in any one year, 3 RNs will enrol at the University or out-of-country courses to up-grade their qualifications from diploma to Bachelor of Nursing degree level, and 1or 2 will be pursuing post-graduate studies at masters or other higher degree level. Some of these specialities include paediatrics, neonatal, critical care, ophthalmology, Public Health, community mental health among others.
- Re-introduce subsidies for training institutions and other logistics to facilitate running of schools
- Introduce allowances of nursing and bonding system that would ensure students serve minimum of three years upon completion.
- Urgently lift ban on employment for Health workers and recruit nurses seeking employment
- Review salaries and allowances, conditions of service in general and put in place incentive packages to retain trained staff.
- Re-introduce stipends and bonding system in the schools for student nurses..
- Strengthen Health information management system with a component on Human Resource Information System (HRIS) that will capture accurate and relevant data on HRH trainees in schools.
- Provide opportunity for the upgrading of some of the Nurse Aides with relevant qualifications and aptitude to undertake professional nurse courses.

- **Mental Health Nursing**

The NHP has incorporated the rehabilitation of the three mental health facilities. The HRH plan therefore proposes the introduction of mental health training either in-country on-the- job or out of country for Mental Health nurses to supplement the numbers that may be around in anticipation of the planned rehabilitation of these facilities.

The training of about **15** Mental Health Nurses would be trained over the five year period. Six would be trained for the fist two years.

### 3.6 Pharmaceutical Service personnel - requirements, staffing and training

#### *3.6.1* MOH&SW *Pharmaceutical Services - current situation*

The pharmacy cadre is made up of the pharmacists, Pharmacy Technician and Dispensary Assistants. Currently, there were 33 pharmacists in the country as provided by the Chief Pharmacist. Of this figure, only 6 were with the Public sector. 15 with NGOs and 10 in the Private sector while the remaining two died. Again, three (3) out of the six in the public sector worked at the Central level while two were at the JFK Hospital.

According to the former, there were only two Pharmacy Technicians working in the Teaching Hospital.. He added that all the dispensers listed in the Rapid Assessment Report were nurse aides and not trained dispensers. The Chief pharmacist also indicated that plans were far advanced for the training of Dispensing Technicians and was hopeful that the training of the latter would begin in 2007.

**Table 3.6.1 MOH&SW - Pharmaceutical services - posts and personnel, November 2006**

| Designation of post | Number of Staff | Norm |
|---|---|---|
| Director of Pharmaceutical Services | 1 | 1 |
| Deputy Directors | 2 | 2 |
| Senior Pharmacist | 3 | 2 |
| Pharmacists | - | 38 |
| NGOs | 15 | 15 |
| Private sector | 10 | 10 |
| **Total** | **31** | **68** |

None of the Pharmacists will reach retiring age before the end of the year 2011.

#### *3.6.2 Pharmaceutical services - future development*

The number of pharmacist required by norm (68) to manage the various service areas of MOHSW and the Private sector has a shortfall of 37. It is anticipated that with the current training statistics the gap would be bridged by the end of plan period – 2011. The target is to bridge the current pharmacist population ratio of 1: 103,226 to 1:47,059 in the health sector by the year 2011.

Although the norm stipulates a requirement of 128 pharmacy technician for the Health sector, the target for pharmacy technician is 1:61,538 (i.e 52) as there are only two in the sector and no training has commenced for this category yet. By 2011 there would be about 60 I the sector if the training commences in 2007 and intakes match the proposed figures in the plan compared to the current zero ratios. Since the training was likely to commence in 2007, it is proposed that the first three yearly intakes for the 2007/2008 years which would turn out graduates for the plan period should have at least twenty (20) enrolments each.

#### *3.6.3 Projection of pharmaceutical service requirements, staffing and training*

| | **Actual** | **Required staffing** | | | | | |
|---|---|---|---|---|---|---|---|
| **Pharmacist** | **2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Population | 3,200,000 | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| | 31 | 68 | 69 | 71 | 73 | 74 | 77 |
| | | | | | | | |
| **Pharmacy Technician** | 2 | 52 | 53 | 55 | 56 | 57 | 59 |
| | | | | | | | |

#### *3.6.4 Training of pharmaceutical personnel*

The pharmacists are trained at the Medical School where they share the already overstretched facilities with the medical students. The training is for four years and 64 students were enrolled in various years of training at the time of this plan.

The school can admit up to 34 students per year. They have a failure to complete rate of about 9% - about 3 students. The following schedule indicates output from the school during the plan period. The Pharmacy technologist course was however not yet available even though it was hopeful that this course would commence in 2007.

**Table 3.6.4 Training schedule – Pharmacy personnel – Bachelor of Pharmacy and Pharmacy Technician**
A total of 58 pharmaceutical personnel would be trained by 2011 if the failure rate of 9%is applied. The cost of training a pharmacist is USD4, 500 per year, USD3, 000 for pharmacy Technician per year**.**

**Table 3.6.4 Training schedule – Pharmacy personnel – Bachelor of Pharmacy and Pharmacy Technician**

| Year | Output of BSc. Students | Cost of training (in US Dollars) | Pharmacy Technician – 3 yrs | Cost of training |
|---|---|---|---|---|
| 2006 | 8 | 4,500/student/year | 0 | |
| 2007 | 10 | " " " | 20 | 3,000/student/year |
| 2008 | 12 | " " " | 20 | " " " |
| 2009 | 9 | " " " | 20 | " " " |
| 2010 | 25 | " " " | - | |

A total of 68 pharmaceutical personnel would be trained by 2011. The cost of training a pharmacist is USD4, 500 per year, USD3, 000 for pharmacy Technician per year**.**

***3.7.1 Physician Assistants - future development***
According to the Rapid Assessment data, there were a total of 273 PAs, **236** of which are full time and the remaining 37 part time. From the Director of the PA Division, out of a total of 561 who were trained between 1968 to date, only 178 worked for the Public sector, 21 died and the remaining have either migrated within or without.
Table 3.7.2 below shows that there is a Physician Assistant/population ratio of 1: 13,559. The norm however stipulates a requirement of 450 physician Assistants to deliver the basic health package of health services and this translates into a population ratio of 1:6,926. The shortfall for Physician Assistants at the beginning of the plan period was **226.**

***Table 3.7.1 Projection of Physician Assistants requirements, staffing and training***

| | **Actual** | **Required staffing** | | | | | |
|---|---|---|---|---|---|---|---|
| **Physician Assistants** | **2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Population | 3,200,000 | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| | 236 | 462 | 473 | 484 | 496 | 507 | 520 |

Table 3.7.2 shows the timing of staff intakes in order to meet the required staffing of Physician Assistants posts.
To be able to achieve the target by the plan period the following are the training intakes taking into consideration a failure rate of 5%.

**Table 3.7.2 Training schedule and training costs – *Physician Assistants***

| Training course | Year | Output from school | Number of trainees to commence training | Cost of Training in US Dollars |
|---|---|---|---|---|
| 3-year course | 2006 | | 43 | 2500/student/year |
| | 2007 | 41 | 70 | " " " |
| | 2008 | 51 | 70 | " " " |
| | 2009 | 43 | | |
| | 2010 | - | | |
| | 2011 | - | | |
| **Total** | | **135** | **183** | |

A total of 318 physician Assistants would be trained by 2011. The cost of training one physician Assistant in a year is USD2, 500.

***3.8.1 Social Workers - future development***
Again, the Rapid Assessment data gave a total figure of 100 for this cadre and of which 76 worked full time and 24 part time. The Deputy Minister of Social Welfare however, indicated that though the figure might be right, the officers however were not trained professionals. All the 100 personnel at the time of this plan were based at the central level. Although the Minister had the intention of deploying them to the counties, she added that the officers were undertaking some assignments and could not be deployed immediately. These cadres were also said to be in gross short supply and therefore there is the need to train more to staff the counties, Districts and hospitals.

Table 3.8.2 below shows that there was a Social Worker/population ratio of 1: 32,000 even though this was disputed since about half of such persons designated as social workers were not trained. The norm however stipulates a requirement of 123 Social workers using the WHO staffing model and the peculiar needs of the country and this translates into a population ratio of 1:26,016. The shortfall for this cadre at the beginning of the plan period if half of the staff are not trained is 73 and would be 88 at the end of the plan period.

***Table 3.8.1 Projection of Social Workers' requirements, staffing and training***

| | **Actual** | **Required staffing** | | | | | |
|---|---|---|---|---|---|---|---|
| **Social Workers** | **2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Population | 3,200,000 | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| | 100 | 123 | 126 | 129 | 132 | 135 | 138 |

Based on the assumption that about half were not trained personnel, table 3.8.3 shows the timing of staff intakes in order to meet the required staffing of Social Workers' posts.

***Table 3.8.2 Training of Social Workers***

| Training course | Year | Output from school | Number of trainees to commence training | Cost of Training in US Dollars |
|---|---|---|---|---|
| 3-year course | 2006 | | 16 | 600/student/year |
| | 2007 | 13 | 20 | " " " |
| | 2008 | 0 | 20 | " " " |
| | 2009 | 16 | | |
| | 2010 | - | | |
| | 2011 | - | | |
| **Total** | | **29** | **56** | |

**Cost of training one Social work student per year is USD600**

**Proposals**

Regarding the deployment of all 100 persons at the central level, the HRH WG proposes the following:

- Urgent need to review background of persons designated as social workers and possibly retrain with or redistribution of such person to the counties.
- Review curriculum and standards of training
- Critically review job descriptions of social workers to indicate which locations their services would be utiilised most.
- Expand training infrastructure and build capacities for trainers to be able to increase numbers for training

### 3.9.1 Laboratory Service personnel - requirements, staffing and training

#### *3.9.1* MOH&SW *Laboratory Service - current situation, November 2006*

The MOHSW Laboratory Service is headed by the Director. The November 2006 establishment and staffing of the MOHSW laboratory service are shown in the following table. From the Rapid Assessment report, 149 lab technicians were in the health sector of which 126 worked full time and the 23 part time. The disaggregation of how many worked in the public and private sectors of health were however not indicated.

**Table 3.9.1 MOH&SW Laboratory Service - posts and personnel, November 2006**

| Designation of post | **Actual Staff** | | **Norm** | |
|---|---|---|---|---|
| | Lab. Tech'gist | Lab. Assistant | Lab. Tech'gist | Lab. Assistant |
| Director Laboratory Services | 1 | | 1 | |
| Dep. Dir.Laboratory Services | 1 | | 1 | |
| Supervisor Laboratory Technologist | 5 | | 5 | |
| Laboratory Technologist | 15 | | | |
| Senior Lab Technician | 35 | | | |
| Lab Technician | 69 | | 125 | |
| | | | | |
| **Total** | **126** | **135** | **148** | **352** |

### *.3.9.2 Laboratory Service - future development*

With future increasing numbers of doctors in both the government and non-government health services further increases in the demand for laboratory services are anticipated.

- **Laboratory Technicians**

The staffing norm however indicates the need for 148 laboratory technician for the health sector, which translates into one laboratory staff to 21,622 people. The target for 2011 would stand at 167 creating a shortfall of 41.

- **Laboratory Assistants**

It was also the consensus of senior managers and experts that laboratory assistants manage mini laboratories for basic tests at the clinics. With the assumption that all the 135 laboratory aides cited by the Rapid Assessment report were trained, then the shortfall for this cadre would be about 235 as the norm stipulates a total of 370.

### *3.9.2 Projection of laboratory service requirements, staffing and training*

| | Actual | Required staffing | | | | | |
|---|---|---|---|---|---|---|---|
| **YEAR** | **2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Population | 3,200,000 | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| **Laboratory Technician** | 126 | 148 | 152 | 155 | 159 | 163 | 167 |
| | | | | | | | |
| ***Laboratory Assistants** | 135 | 352 | 360 | 369 | 378 | 387 | 396 |
| | | | | | | | |

### *3.9.3 Training of laboratory personnel*

At the time of the development of this plan, local training of laboratory technicians was provided by way of a three-year Associate degree structured program for High school graduates.

The following schedule indicates starting times and numbers of trainees to commence training from the beginning of the plan the end of 2011. The numbers should be regularly reviewed and updated in the light of changing circumstances.

**Table 3.9.3 Training schedule – Medical laboratory personnel**

| Lab. Technician Training course | Year | Output from school | Number of trainees to commence training | Cost of Training in US Dollars |
|---|---|---|---|---|
| 3-year course | 2006 | 0 | 13 | 700/student/year |
| | 2007 | 13 | 16 | " " " |
| | 2008 | 0 | 16 | " " " |
| | 2009 | 0 | - | |
| | 2010 | - | - | |
| | 2011 | - | - | |
| **Total** | | **13** | **45** | |

**Cost of training on one laboratory Technician student is USD 700**

***Laboratory Assistants to be trained on the job or at the Teaching Hospital and sponsored by facilities**

## 3.10. Radiology personnel - requirements, staffing and training

### *3.10.1* MOH&SW Radiography *- current situation, November 2006*

There were 22 X-ray technicians working full time in the health sector. However, there is no radiologist and the areas of deployment of these cadres were not made clear in Rapid Assessment report. The norm however stipulates a total need for 56 and thus indicating a shortfall of 34.

**Table 3.10.1 MOH&SW Radiology Service - posts and personnel, November 2006**

| Designation of post | Actual Number | Norm |
|---|---|---|
| Radiologist | 0 | 3 |
| Radiographers | 22 | 56 |
| **Total** | **22** | **56** |

Radiographers were reported to be trained at the Teaching Hospital undertaking a two-year structured training course leading to the award of certificate in Medical Imaging but this had stalled due to the conflict. Radiologists on the other hand, were trained out of country. There were no radiologists in the country at the time of this plan. The training of Radiographers had also stalled at the hospital.

### *3.10.2 Radiology Service - future development*

The plan to rehabilitate hospitals with the appropriate Radiology equipment would lead to a considerable increase in the workload of the Radiology personnel. Also, proposed increases in the numbers of doctors in both the government and non-government health services will further increase the demand for medical imaging services.

- **Proposals**

**There is the urgent need to re-open the training of this category of personnel alongside the planned Health sector revitalisation.**
**The HRHWG proposes that in order to meet the requirements of 63 at the end of the year 2011, the number of qualified radiographers to be trained would be 14 every year.**
**A radiologist shall be trained or recruited as one of the specialists doctors.**
**The intake of trainee Radiographers would be adjusted to ensure that the posts for trained radiographers are filled.**

### *3.10.2 Projection of Radiology Service requirements, staffing and training*

| | Actual | Required staffing | | | | | |
|---|---|---|---|---|---|---|---|
| **X-ray Technician** | **2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Population | 3,200,000 | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| | 22 | 56 | 57 | 59 | 60 | 62 | 63 |

### *3.10.3 Training of Radiography service personnel*

The following schedule as per t*able 3.9.4.* Indicates starting times and numbers of trainees to commence training from the beginning of the plan to the end of 2011. The numbers are subject to review due to changing circumstances.

**Table 3.10.3 Training schedule – Radiography personnel**

| Training course | Year | Number of trainees to commence training |
|---|---|---|
| Certificate in Radiography | 2006<br>2007<br>2008<br>2009<br>2010 | 0<br>14<br>14<br>14<br>- |
| **Total** | | **42** |

A total of 42 Radiology personnel would be trained at the end of the plan period

***Table 3.10.4 Cost of training Radiography personnel is USD700/srtudnet/year***

| X-ray Technician Training course | Year | Output from school | Number of trainees to commence training | Cost of Training in US Dollars |
|---|---|---|---|---|
| 2-year course | 2006<br>2007<br>2008<br>2009<br>2010<br>2011<br>**Total** | 0<br>0<br>-<br> | <br>14<br>14<br>14<br>-<br>-<br>**42** | <br>700/student/year<br>“ “ “<br>“ “ “ |

### 3.11 *Environmental Health Officers (EHOs)* - requirements, staffing and training

#### *3.11.1* MOH&SW *Environmental Health Officers- November 2006*

The Chief Environmental Health Officer heads the EHO Division of MOH&SW with eighty-six others based at the central level (Statistics obtained from the unit). In November 2006, EHOs' personnel staffing of the service are shown in the following table. On the other hand, the Rapid Assessment Report had a total of 55 EHOs of which 16 worked part time. As usual, the sectors of work were not indicated. The norm stipulates the need for 136 and thus a shortfall of 49 using data from the Director's office.

**Table 3.11. 1. MOH&SW *Environmental Health Officers* – posts and personnel, November 2006**

| Designation of post | Number of staff | Norm |
|---|---|---|
| Director | | |

| | | |
|---|---|---|
| | 1 | 1 |
| Dep Dir. | 1 | 1 |
| Environ. Health Officers | 85 | 109 |
| **Total** | **87** | **136** |

### *3.11.2 Environmental Health Officers - future development*

### *3.11.2 Projection of Environmental Health Officers requirements, staffing and training*

| | **Actual** | **Required staffing** | | | | | |
|---|---|---|---|---|---|---|---|
| **Environmental Health Officers** | **2006** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Population | 3,200,000 | 3,200,000 | 3,276,800 | 3,355,443 | 3,435,974 | 3,518,437 | 3,602,800 |
| | 87 | 136 | 139 | 143 | 146 | 150 | 153 |

### *3.11.3 Training of Environmental Health Officers*

The following schedule as per table 3.10.3 indicates starting times and numbers of trainees to commence training over the planning period to the end of 2011. The numbers are subject to review due to changing circumstances.

**Table 3.11.3 shows the training schedule in order to meet the required staffing of EHO posts**

| EHOs Training course | Year | Output from school | Number of trainees to commence training | Cost of Training in US Dollars |
|---|---|---|---|---|
| 2-year course | 2006 | 18 | 24 | 700/student/year |
| | 2007 | 24 | 16 | " " " |
| | 2008 | 0 | 16 | " " " |
| | 2009 | 0 | 16 | " " " |
| | 2010 | - | - | |
| | 2011 | - | - | |
| **Total** | | **32** | **72** | |

### 3.12.1 Summary of training intakes

Table 3.12 presents in summary form the changes in the numbers of required staff (ie posts) and staff in post over the years from the beginning of year 2007 to the end of 2011.

**Table 3.12 Summary of training intakes to meet requirements for 2011**

| CATEGORIES | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Total |
|---|---|---|---|---|---|---|---|
| **TRAINEES INTO PROGRAMMES IN-COUNTRY** | | | | | | | |
| Medical Officers | 13 | 4 | 12 | 17 | 20 | 0 | 66 |
| Physician Assistants | 43 | 70 | 70 | 0 | 0 | 0 | 183 |
| Registered Nurses | 73 | 80 | 80 | 0 | 0 | 0 | 233 |
| Certified Midwives | 79 | 50 | 50 | 50 | 0 | 0 | 229 |
| Pharmacists | 8 | 10 | 12 | 9 | 25 | 0 | 74 |
| Pharmacy Technician | 0 | 20 | 20 | 20 | 0 | 0 | 60 |
| Laboratory Technologists | 13 | 16 | 16 | 0 | 0 | 0 | 45 |
| *Laboratory Assistants | | 74 | 74 | 74 | 74 | 74 | 370 |
| X-ray Technicians | 0 | 14 | 14 | 14 | 0 | 0 | 42 |
| Social workers | 16 | 24 | 24 | 0 | 0 | 0 | 64 |
| Environ. Health Officers | 24 | 16 | 16 | 16 | 0 | 0 | 72 |
| **Total** | | | | | | | 1,438 |
| **ENTRANTS TO TRAINING PROGRAMMES OUT OF COUNTRY** | | | | | | | |
| Medical Specialists | | 2 | 2 | 2 | 2 | | 8 |
| Human Resources Managers | | 2 | 2 | 1 | 1 | | 6 |
| Health Serv. Administrators | | 2 | 2 | 1 | 1 | | 6 |
| Specialised Nursing | | 2 | 2 | 2 | 3 | 3 | 12 |
| Health Economists | | 1 | 1 | | | | 2 |
| Physiotherapists | | 2 | 1 | 1 | | | 4 |
| Nurse tutors | | 3 | 3 | 4 | 5 | | 15 |
| Mental Health Nurses | | 3 | 3 | 3 | 3 | 3 | 15 |
| Nutrition | | 3 | 3 | 3 | 3 | 3 | 15 |
| **Total** | | 20 | 19 | 17 | 18 | 9 | 83 |
| **Grand total** | | | | | | | 1,521 |

Table 3.12 above shows year by year the number of trainees to enter training programmes in order to fill existing vacant posts and meet future requirements. This training schedule is concerned with basic and pre-service training.
Trainees in the University of the Liberia and the Colleges are funded from other sources other than Government due to the conflict. The entrants to training programs out of country are and would be beneficiaries of scholarships or fellowships awarded and funded by the MOH&SW.

### 3.12.2 Training costs of Human Resources for Health/category/year

| Category | 2007 | 2008 | 2009 | 2010 | 2011 | Total cost |
|---|---|---|---|---|---|---|
| **Specialist Doctors** | 50,000.00 | 200,000.00 | 200,000.00 | 100,000.00 | - | **550,000.00** |
| **Medical Doctors** | 325,000.00 | 200,000.00 | 900,000.00 | 1,700,000.00 | 2,500,000.00 | **5,625,000.00** |
| **Reg, Nurses** | 382,500.00 | 582,500.00 | 400,000.00 | 200,000.00 | - | **1,565,000.00** |
| **Mental Health Nurses** | 30,000.00 | 60,000.00 | 90,000.00 | 60,000.00 | 30,000.00 | **270,000.00** |
| **Cert. Midwives** | 75,000.00 | 150,000.00 | 225,000.00 | 150,000.00 | 75,000.00 | **675,000.00** |
| **Pharmacists** | 90,000.00 | 162,000.00 | 162,000.00 | 562,500.00 | - | **976,500.00** |
| **Pharm. Tech.** | 500,000.00 | 1,000,000.00 | 500,000.00 | - | - | **2,000,000.00** |
| **Physician Asst.** | 395,000.00 | 762,500.00 | 810,000.00 | 380,000.00 | - | **2,347,500.00** |
| **Soc. Worker** | 37,200.00 | 33,600.00 | 24,000.00 | 12,000.00 | - | **106,800.00** |
| **Med. Lab. Per.** | 29,400.00 | 22,400.00 | 22,400.00 | 11,200.00 | - | **85,400.00** |
| **Radiological Per.** | 9,800.00 | 19,600.00 | 19,600.00 | 9,800.00 | - | **58,800.00** |
| **Env. Health Off.** | 44,800.00 | 22,400.00 | 11,200.00 | 11,200.00 | - | **89,600.00** |
| **Human Res. Manager** | 64,000.00 | 64,000.00 | 32,000.00 | 32,000.00 | 192,000.00 | **384,000.00** |
| **Health Service Adm.** | 20,000.00 | 40,000.00 | 50,000.00 | 60,000.00 | 40,000.00 | **210,000.00** |
| **Nurse Tutors** | 48,000.00 | 96,000.00 | 112,000.00 | 144,000.00 | 80,000.00 | **480,000.00** |
| **Mental Health Nursing** | 30,000.00 | 60,000.00 | 90,000.00 | 60,000.00 | 30,000.00 | **270,000.00** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Specialist Nursing** | 20,000.00 | 40,000.00 | 40,000.00 | 50,000.00 | 60,000.00 | **210,000.00** |
| **Health Economist** | 32,000.00 | 32,000.00 | - | - | - | **64,000.00** |
| **Physiotherapist** | 64,000.00 | 96,000.00 | 128,000.00 | 64,000.00 | 32,000.00 | **384,000.00** |
| **Nutrition Technician** | 50,000.00 | 100,000.00 | 150,000.00 | 100,000.00 | 50,000.00 | **450,000.00** |
| **Total** | **2,296,700.00** | **3,743,000.00** | **3,966,200.00** | **3,706,700.00** | **3,089,000.00** | **16,801,600.00** |