



Ministry of Health and Social Welfare

Assessment of the Pharmaceutical Human Resources in Tanzania and The Strategic Framework





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2009

Published by the Ministry of Health and Social Welfare,
Dar es Salaam, Tanzania

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Jamana Printers

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Acknowledgements/Disclaimer

This document has been produced with the financial assistance of the European Community and the technical support of the World Health Organization. The views expressed herein are those of the authors and can therefore in no way be taken to reflect the official opinion of the European Community or the World Health Organization



**European
Union**



**World Health
Organization**

Acknowledgement

The Ministry of Health and Social Welfare wishes to thank the World Health Organization (WHO) whose financial support enabled the conduct of this survey. The Ministry would like to acknowledge all people who contributed their time and expertise to carry out this survey. In particular we would like to mention the following: The Director for Hospital Services Ministry for Health, Dr Z. Berege; The Registrar of the Pharmacy Board, Mrs Mildred Kinyawa, the Chief Pharmacist, Mr Joseph Muhume and the WHO Country Office Essential Medicines and Medicine Policy National Professional Officer (EDM NPO), Ms Rose Shija.

The Ministry of Health and Social Welfare is grateful to the Regional and District Medical officers of Dar Es Salaam, Mwanza, Dodoma, Mtwara, Rukwa and Kilimanjaro regions as well as the District Health Secretaries in the study regions for the support they gave to data collectors during the study. The Ministry also thanks the Directors and Managers of the Pharmaceutical industries of Tanzansino, Shelys, Mansoor Daya, AA Pharmaceuticals, Zenufa Laboratories, Keko Pharmaceuticals and Tanzania Pharmaceutical Industry for the cooperation they gave. The Office of the Director General of TFDA, Pharmacy Council and Pharmaceutical Services Unit (PSU) at the Ministry of Health gave an extraordinary support. The data on population and income per capital was obtained from the Tanzania Bureau of Statistics which is highly acknowledged. We would also like to extend our thanks to the World Health Organization (WHO) local office staff (the WRai, Dr. Jean-Baptiste Tapko, Dr Martin Ovberedjo, The Human Resources for Health Adviser, and Ms Rehema Musikira, the Secretary, Country Programmes) for encouragement and assistance in the whole process from advise, literature to logistical facilitation. This activity would not be successful without a dire commitment of data collectors and cooperation from the respondents. Many people including those not directly mentioned herein gave us assistance and we thank them all. Finally, the Ministry of Health and Social Welfare wishes to acknowledge Dr Omary Minzi for coordinating this assessment.

List of Abbreviations

1. FBOs Faith Based Organizations
2. MOHSW Ministry of Health and Social Welfare
3. MSD Medical Stores Department
4. MUHAS Muhimbili University of Health and Allied Sciences
5. TFDA Tanzania Food and Drug Authority
6. NGOs Non-Governmental Organizations.
7. PC Pharmacy Council
8. PSS Pharmaceutical Supply Section
9. SJUT St. John's University of Tanzania
10. SoP School of Pharmacy
11. WHO World Health Organization

Executive summary

Lack of comprehensive data on pharmaceutical personnel in the pharmaceutical sector is a gap in national Human Resource policies in most developing countries. This study was undertaken in order to determine the total workforce providing pharmaceutical services in both the public and private sectors in Tanzania. A tool with structured questionnaires was used to collect data from 6 administrative regions in the country. From each region, 15 public health facilities and 15 private facilities among them 5 pharmacies were both randomly and purposely selected. Human Resource Managers and other senior officials at the Ministry of Health, Pharmacy Council, Hospitals, health facilities, Pharmaceutical Industries and Pharmacy Schools were interviewed on the data of their personnel using various questionnaires. In addition to administrators, individual pharmacists working in the visited facilities were also interviewed.

The main questions focused on regulation of the practice of pharmacy, pharmacy education and job satisfaction of pharmaceutical personnel in the country. The results show that, the density of pharmacists is low (0.01-1.37 per 10,000 in all 21 regions in the country with a mean of 0.18 per 10,000 population nationally). The number of pharmacies per 10,000 population (1.68) is also low ranging between 1.08-2.61 between region. The majority of pharmacists and pharmacies are found in urban areas with some underserved regions having only 2 pharmacists per region.

Data from 2007-2009 showed that there was high number of pharmacies owned by the public (61%) and private retail pharmacies were only 10%. The majority of pharmacists were employed in the public sector (44%) and those working in private retail pharmacies were 23%. Data from the MOHSW showed that, at the moment only 3% of the pharmacists were employed in private health facilities and there was no significant growth in number of the pharmacists and pharmaceutical technicians between 2007-2009 since the number of new pharmaceutical personnel practically remained low.

The salaries of pharmacists varied a lot depending on the place of work. Those who worked in the academia were the highest paid followed by those who worked in the multilateral non-governmental organizations. The public retail pharmacies as well as Faith Based Organizations (FBOs), private facilities and public sector paid the pharmacists much lower salaries compared to academia, NGOs and Pharmaceutical Industries. However, the minimum and maximum salary of medical doctors was significantly higher than that of pharmacists despite having a difference of only one year of training.

In total 51 % of the pharmacists considered moving from their workplaces to other sectors. As many as 74 % of the pharmacists working at the MOHSW considered moving to public facilities and NGOs and nearly all pharmacists working in the private health facilities indicated to move to public sector or multilateral NGOs while 50% retailers indicated to move to other places. In general the majority of interviewed Pharmacists would like to join NGOs and public sector. In most facilities, there were no job descriptions for pharmaceutical personnel and work performance was not an indicator for promotion consideration. Currently there are only 2 schools which provide a Bachelor of Pharmacy degree and the number of student enrollments is very small compared to applicants. Post graduate programs are only offered by one public-owned school of pharmacy and the number of postgraduate students enrolled per year is relatively small.

It can be concluded that the pharmacy profession is faced by problems which are multifaceted. A coordinated effort to enhance pharmacy workforce planning, training and education is needed in order prepare an adequate number of competent pharmacists in the country. It is important to consider not only medical doctors but all health professionals, including pharmacists and lower pharmaceutical cadres when developing workforce plan. The higher learning institutions should review their curriculum to enhance patient care disciplines in addition to the current dispensing, compounding and pharmaceutical management courses. This should go hand in hand with capacity building of teaching staff. In addition, the oldest school of pharmacy at MUHAS should design motivating postgraduate courses to attract many candidates who in turn will serve as human resources for new pharmacy schools.

1. Introduction

In developing countries, most people when they are ill initially visit drug outlets to seek medical care (Stenson et al, 2001). Pharmacies are important drug outlets for provision of medicines, drug information and counseling as well as referral to health facilities (Ward et al, 2009). Pharmacists are the first people in most cases to be consulted by patients to seek medical advice and in hospitals they are the last people to be seen by patients (Stenson et al, 2001).

Increasingly the roles of pharmaceutical cadres are growing, moving from simply compounding and dispensing medicines and expanding to drug development, pharmaceutical manufacturing, patient care and participation in a multidisciplinary team of health workers in conducting ward rounds (Ward el, 2009). Worldwide, there is increasing demand for pharmacists to expand their service provision to capture counseling on drug interactions and drug adverse effects and their management. (Stevens, et al, 1997). Availability of qualified pharmaceutical personnel in health delivery system is essential in improving public health and reduction of disability and mortality.

The crucial role of Human Resources for Health (HRH) in health systems has not been fully appreciated until recently with the advent of the AIDS crisis which has contributed to the HRH crisis in many countries. Many health programmes including the pharmaceutical sector have consistently experienced shortages of suitable personnel as one of the major constraints in not accomplishing intended objectives of their national medicines as well as health policies. This state of affairs if left unchecked especially in developing countries which have the highest disease burden, will definitely affect the achievement of the Millennium Development Goals (MDGs). Globally, there is a critical shortage of Health Workers (HW). The shortage is more critical in developing countries, especially in sub-Saharan Africa, but it has also been reported from developed countries (Wuliji, 2009).

There is skill imbalance and maldistribution of health workforce in most developing countries resulting into service provision by unskilled personnel. Poor working environments and lack of motivation are part of issues which have contributed to drainage of the health workers from their countries to developed world to seek for greener pastures.

Pharmacists represent the third largest healthcare professional group in the world (Wuliji, 2009). Availability of trained pharmaceutical personnel is of critical importance in meeting national and global health goals, and thus requires special attention. The development, production, distribution and appropriate utilization of medicines, as well as regulation, operational research and training are of central importance in maintaining a healthy population. Despite the crucial role of the pharmaceutical sector in the provision of medicines to the community it is still faced by many challenges.

There is still a presence of counterfeit and sub-standard medicines on the market of developing countries threatening the public health. There is shortage of pharmaceutical personnel and their distribution is skewed. This has led to inequitable service provision and has created an environment which is favourable for un-authorized and unqualified personnel to take over. To ensure that only quality and authorized products are made available to the population, it requires functional and well-resourced pharmaceutical supply and regulatory systems, with adequate numbers of trained personnel.

Despite their critical importance, information about the total workforce in the pharmaceutical sector is however not available. Lack of reliable information on size, distribution and skills of the pharmaceutical workforce often makes responding to the crisis and strategic planning of human resources more difficult. Most data on public health service providers mainly show the number of doctors and nurses but are usually silent about those who are dedicated to the delivery of medicines in both the public and private sectors. Such information is critical not only in the planning but also in the delivery of services. It has been reported that the ratio of health workers to population correlates with health outcomes such as maternal, infant and under-five mortality rates as well as with coverage of health services like immunization and births attended by trained personnel.

The lack of comprehensive data on pharmaceutical personnel and health workforce in the pharmaceutical sector is a gap in national Human Resources policies. Consequently, national plans and budgets fail to adequately provide for the required investment in training, deployment and continuous development of pharmaceutical personnel as a social and economic priority. There is therefore need for countries to develop the necessary evidence base to support appropriate pharmaceutical Human Resources policies and strategies.

This report describes the human resources availability and challenges encountered in the pharmaceutical sector in Tanzania.

1.1 Country Profile

The United Republic of Tanzania is located in East Africa and it covers 947,480 sq.km where as 77% of the population live in rural area and 65% being below 25 years of age and poverty remains high in the country.

Table 1 below illustrates the country profile in terms of population and growth per capita as well as life expectancy and capita expenditure, total number of medical doctors and nurses in the country. It can be seen that, despite high literacy rate, reasonable life expectancy as compared to other developing countries, the ratio of medical doctors and nurses per patient in a population of about 40 million people is still very low (Ministry of Health, 2008).

Table 1. Country Profile

| Country | Data | Source of Data | Year of Data |
|--|------------|----------------|--------------|
| Total population | 38,291,000 | NBS | 2007 |
| GDP per capita (US\$) | 474.86 | NBS | 2007 |
| Annual growth of the GDP (US\$) | 7.4 | NBS | 2008 |
| Life expectancy at birth males (years) | 50.99 | NBS | 2002 |
| Life expectancy at birth females (years) | 51.04 | NBS | 2002 |
| Total expenditure on health as a percentage of the GDP | 2.04 | NBS | 2007 |
| Per capita expenditure on health in US\$ | 10 | NBS | 2007 |
| Population below 1 US\$ per day | 8424020 | NBS | 2007 |
| Percentage of population using private sector health provision | 24.4 | NBS | 2007 |
| Literacy rate | 69.8 | NBS | 2002 |
| Total number of physicians in the country | 0.35/10000 | MOH | 2006 |
| Total number of nurses and midwives in the country | 6.4/10000 | MOH | 2007 |

NBS= National Bureau of statistics, MOH= Ministry of Health and Social Welfare

1.2 Structure of National Health & Pharmaceutical System

The Government operates a decentralized health system which broadly falls in three functional levels: district (Level I), regional (Level II) and referral hospital (Level III). Under this system, the district have full mandate for planning, implementation, monitoring and evaluation of health services.

The district level provides primary health care services through dispensaries located at the ward level catering for 3-5 villages with a population average of 10,000. The current move is to have a dispensary catering for each village. The health centre is the referral level for the dispensary and it provides a slightly broader range of services than dispensaries, including in-patient care and it used to cover an average population of 50,000.

District hospitals provide services to an average of 250,000 people. Tanzania comprises of 126 districts. All districts have districts hospitals, except for the 21 districts where there

are no government hospitals. In these districts, Faith Based Organization (FBO) hospitals are designated as district hospitals (DDHs). There are 37 private hospitals and 66 Faith Based hospitals providing health services in the country.

The Regional hospitals at Level II serves as a referral point for Level I i.e. District Hospitals with more specialized services and cater for a population of about 1,000,000 people. Level III comprises of Referral and Specialized Hospitals. There are four referral hospitals in the country and four special hospitals providing psychiatry, tuberculosis, orthopedics/trauma and cancer care. Some of the private and FBO hospitals offer specialized services.

The Ministry of Health and Social Welfare (MOHSW) is charged with the responsibility of ensuring the provision of quality health services in the country. To accomplish this responsibility, the Ministry's functions are divided into six directorates which include: Hospital Services, Preventive Services, Human Resource Development, Policy and Planning, Social Welfare, Administration and Personnel. These departments are further divided into sections for effectiveness. The Organization and Management of human resource for health (HRH) functions are undertaken within the parameters of the MOHSW mandate.

The process of organizing and implementing human resource management functions involves multi-institutional arrangements. This requires linkages (internal and external) with other government units and ministries. Internally, the coordination of the HRH function is shared between the Human Resource Development (HRD) and Administration and Personnel directorates. Externally, the MOHSW undertakes human resource function in partnership with Ministry of Finance, Local Government Authorities and other stakeholder institutions. The MOHSW is the employer for referral hospitals and training institutions and also handles health technical issues at all levels of health care.

Under the current arrangements, the MOHSW has oversight function for the collection and analysis of human resource information including provision of statistical estimates of present and future human resource requirements at all levels of the health system. In addition, the Ministry provides technical support to the local authorities and regions to achieve their human resources requirements. Also the Ministry formulates policies, regulation and standards. Within the framework of the ongoing local government reforms, the district authorities have responsibilities for delivering health services including full responsibility for human resource within their areas of jurisdiction. The human resource management framework involves an extensive process requiring multiple decision making steps which are occasionally time consuming and slow.

The Department of Hospital Services of the Ministry of health is divided into several sections including the Pharmaceutical Service Unit. This section is headed by an Assistant Director and it has several Pharmaceutical personnel performing day to day activities of

the section. One of the functions of this section is to formulate the national drug policy and to oversee its implementation in the country. It represents the pharmacy profession at the ministry of health in terms of planning and coordinating all matters related to the Pharmaceutical services including human resources. It is also involved in the preparation of annual budget for all medicines and other pharmaceutical commodities required for the public sector and for their procurement. The Pharmacy Council is responsible for regulating the pharmacy profession and for registering the pharmaceutical personnel in the country and the Tanzania Food and Drugs Authority (TFDA) is responsible for the regulation of medicines and conducts inspections of the private and public drugs outlets in Tanzania.

At the regional level, there is at least one pharmacist responsible for supervising and overseeing all pharmaceutical matters in the region as well as the regional hospital. Ideally, each district is supposed to have one pharmacist overseeing all matters related to pharmacy practice. However, due to low number of pharmacists and the poor living infrastructure in rural districts, this has not been made a reality. In referral hospitals there are many pharmacists and pharmaceutical technicians working under the chief hospital Pharmacist.

Specific Objectives:

- To determine the number of health workers currently providing pharmaceutical services in both private and public formal sectors,
- To determine the distribution of pharmaceutical personnel in both public and private sectors,
- To determine the current and future production capacity for pharmaceutical personnel in each country,
- To identify the categories of health workers other than pharmaceutical personnel provide pharmaceutical services,
- To determine the job satisfaction of pharmacists in the public and private sector.

2. Study Design and Methodology

2.1 Survey purpose

The overall purpose of this survey was to determine human resources availability in the pharmaceutical sector in the country.

2.2 Study Design

This was a cross-section study which involved 6 regions in the country and 180 Health facilities in total were visited. The study was divided into the following:

1. Training of data collectors
2. Sampling and selection of health facilities
3. Data collection

2.3 Training of the Survey Teams

The survey team comprised of 18 data collectors, one data analysts and the principal investigator who coordinated the overall assessment. The data collectors consisted of pharmaceutical staff from the public as well as the private sectors as well as members from the academia.

The training of data collectors took place in Dar e s Salaam, Tanzania from 16-18 June 2009. A field test of the data collection instrument was carried out at the training location. After the training, each region was assigned a team of three data collectors. Data collection from the identified regions was carried out from 22nd June- 4th July 2009.

2.4. Sampling and selection of health facilities

2.4.1.1. Selection of Regions

The following 6 geographical regions were purposely selected for the study: Dodoma as the capital city, Dar Es Salaam as the largest city in the country and Mtwara as the most rural and lowest income-generating area. The other 3 were randomly selected out of the remaining 18 regions.

2.4.2. Selection of health facilities

A total of 180 facilities were sampled based on the list of facilities sent by the Regional Medical Officers of the shortlisted regions. In Each region, 15 Public Health Facilities and 15 Private Facilities were selected.

The selection of the facilities was done based on the following guidance sent by WHO as indicated by table 2 below.

Table 2. Selection of Health facilities

| PUBLIC | | PRIVATE | |
|-----------------------------------|-----------|--|-----------|
| Hospitals ¹ | 2 | Hospitals | 2 |
| Secondary Facilities ² | 8 | Health Facilities | 8 |
| Primary Facilities ³ | 5 | Private Retail pharmacies ⁴ | 5 |
| TOTAL | 15 | TOTAL | 15 |

¹ These could be a reference, regional or university teaching hospital

² These include district hospitals

³ These are the levels of care below the districts

⁴ Includes private retail pharmacies and other authorized outlets

However, the data collectors were instructed to amend the list depending on the situation they would find on the ground by following the below described algorithm:

If for any level of facility (e.g. Secondary Facilities) there were less facilities than the suggested number, the data collectors could select more facilities from the lower level so that the total number selected for each sector reached 15.

If there were fewer than 15 public health facilities in any of the administrative areas chosen for the survey, the data collectors were free to extend the list to include more private facilities.

The data collectors reported to the RMOs. The RMOs wrote letters of introduction to the district medical officers (DMOs) (and to Directors of pharmaceutical industries and Deans of pharmacy schools wherever applicable) to introduce the data collectors. The data collectors reported to the DMOs' offices in each district before proceeding with the data collection activity.

2.5 Data collection

Questionnaires used for data collection are described below:

- No 1 Ministry of Health
- No 2 Pharmacy Council
- No 3 Providers of tertiary education
- No 4 Selected public and private facilities (including manufacturers)
- No 5 Pharmacists at all the levels above

2.5.1. Data collection at the Ministry of Health and Pharmacy Council

Both the Ministry of Health and the Pharmacy Council were interviewed.

Questionnaire 1 was used for collecting information from the Ministry of Health.

Questionnaire 2 was used for collecting information from the Pharmacy Council.

Questionnaire 5 was used to collect information from pharmacists in Ministry of health and pharmacy council. Appointments for interviews were made before hand.

2.5.2. Data collection to the providers of tertiary education.

The data collectors visited the providers of tertiary (university level) education for pharmacists in the country and interviewed them.

Questionnaire 3 was used for collecting information from the Deans of the Pharmacy Schools visited. Questionnaire number 5 was administered to each pharmacy Lecturers (pharmacists) who was available at the school during the visits.

2.5.3. Data collection in the Pharmaceutical Industries, Health facilities and Pharmacies.

Questionnaires were administered to the persons incharge of the facilities, health secretaries, human resource officers and the pharmacists found on the respective facilities.

Form 4 was administered to managers of the facilities (eg - health secretaries, human resource officers) while form 5 was administered to the pharmacists found in the respective facilities.

2.6 Data entry and analysis

2.6.1. Data processing, analysis and reporting

A data processing excel sheet (prepared by WHO) was used to enter data directly from the filled questionnaire. The data was keyed into a summary excel sheet designed for this purpose. The data was analysed and key information was obtained.

For quantitative data, calculations were automatically made by the data excel sheet and transferred to the summary form.

2.7 Scope and limitations of the study

The major limitation was the consistent absence of key respondents in the private health facilities. In some cases the facility owners who were supposed to respond to form 4 had delegated the task to their managers who did not have data or access to most information required. Therefore, issues like personnel salaries and job description did not receive reliable answers. In some cases the interviewee refused to disclose the salaries of the employees at the facility for the reason that salaries were confidential between employer and employee. Lack of a focal point for human resources in most of the visited facilities including the Ministry of Health was a challenge in getting authentic data. In some places the available data was not updated.

3 Results and Analysis

3.1. Regulating the practice of pharmacy

The practice of pharmacy is regulated by Pharmacy Council (PC) and it is the Council that is also responsible for registration of pharmacists in the country. Currently, all practicing pharmacists are required to renew their registrations annually by paying retention fees in order to maintain their names in the register of the PC. The PC also maintains the register of pharmaceutical technicians and pharmaceutical assistants by enrolling and enlisting them respectively.

The Tanzania Food and Drug Authority (TFDA) on the other hand regulates products and requirements of pharmacy premises-, and the quality of the products therein.

The Pharmacy council issues a licence of pharmacy practice to each registered pharmacy each year and is responsible in regulating the activities and conduct of all pharmacists in pharmacies.

3.2 Number of pharmacies in the country.

Table 3.2.1 presents the number of pharmacies categorised by type of premise in the country. There is a total of 5241 pharmacies with public sector pharmacies comprising 61% of all pharmacies whereas non governmental organizations (NGOs) have the least number of pharmacies in the country. This corresponds to the number of available health facilities in each sector. For instance the number of public health facilities is the highest in the country and in each public facility there is a pharmacy providing service.

Table 3.2.1. Number of pharmacies by premise type

| Types of premise | Types of premise | Types of premise |
|--------------------|------------------|------------------|
| Pharmacies (all) | 5241 | 100 % |
| Public pharmacies | 4185 | 61% |
| Private facilities | 659 | 10% |
| NGO | 155 | 2% |
| Faith-based | 853 | 12% |
| Wholesalers | 375 | 5% |
| Private retail | 661 | 10% |

3.3. Number of pharmacists in the country

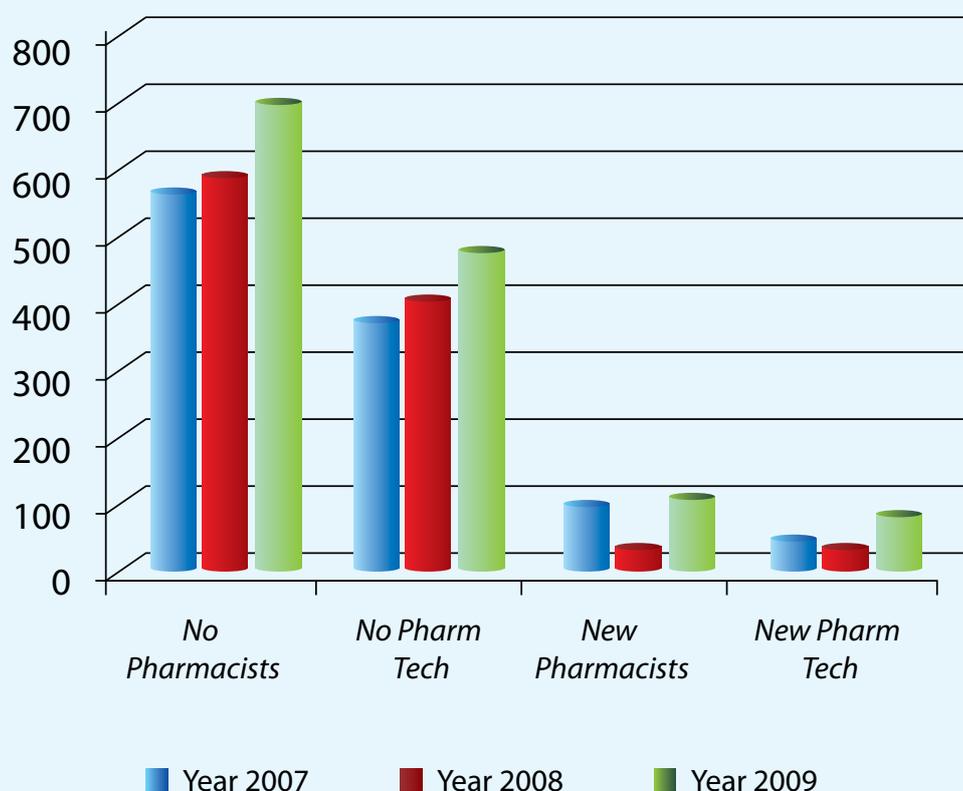
Through this study it was revealed that the total number of pharmacists in the country as of August 2009 was 703 and most of them worked in the public sector (44%). The private retail pharmacies employ about 23% of the total pharmacists in the country. The least number of pharmacists (2%) work in Faith based health facilities which occupy about 3% of total facilities in the country. Table 3.3.1 below shows how pharmacists are distributed in different places/sectors of work in the country

Table 3.3.1. Number of pharmacists per sector

| Country | Number of pharmacists | % |
|-------------------------------|-----------------------|-------------|
| Public sector | 280 | 44% |
| Private-for-profit facilities | 20 | 3% |
| Private retail pharmacies | 146 | 23% |
| Private wholesalers | 80 | 13% |
| Pharmaceutical manufacturers | 20 | 3% |
| Academia/teaching | 50 | 8% |
| Faith-based health facilities | 10 | 2% |
| Multilateral/bilateral/NGOs | 16 | 3% |
| Not currently working | 18 | 3% |
| Total | 640 | 102% |

Fig 3.3.1 below illustrates the trend of growth in the number of pharmacists and pharmaceutical personnel in the country between 2007-2009. There was no significant increase in the number of all categories of pharmaceutical personnel between 2007 and 2008. Even the number of new personnel practically remained low with a drop of new pharmacists in 2008 compared to 2007. The drop in numbers in 2008 could probably be because in that year, there were nationwide strikes of health workers and some newly graduated pharmacists who were still working as intern-Pharmacists had their registration procedure affected. However, there was no complete data available for 2006 both at the Ministry of Health and at the Pharmacy Council.

Fig. 3.3.1. Number of Pharmaceutical personnel between 2007-2009



3.4. Distribution of pharmacies and pharmacists

Tables 3.4.1 and 3.4.2 indicates the distribution of pharmacies and Pharmaceutical personnel per region in the country. It can be seen that there is uneven distribution of the facilities and pharmaceutical personnel in various regions in the country. In Dar Es Salaam alone (the largest city in the country), there are about 400 pharmacists and 160 pharmaceutical technicians and 750 pharmacies. In Rukwa and Manyara regions where the population of each is almost half that of Dar es salaam, there are only 2 and 4 pharmacists and about 200 pharmacies in total respectively. The ratio of Pharmacists per 10,000 population also varies tremendously ranging between 0.01- 1.37 and the ratio of pharmaceutical technicians to 10,000 population ranged between 0.02-0.56. On the other hand the ratio of pharmacies to 10,000 population ranges between 1.08-2.61. The ratio of pharmaceutical personnel and pharmacies at the national level is also reflected in table 3.4.2.

Table 3.4.1. Distribution of pharmacies and Pharmaceutical personnel per region

| Region | Population in thousands | Pharmacists | | Pharmacists Technicians | | Pharmacies | |
|---------------|-------------------------|-------------|---------------|-------------------------|---------------|------------|---------------|
| | | Total | Public Sector | Total | Public Sector | Total | Public Sector |
| Dar Es Salaam | 2882 | 396 | 148 | 161 | 53 | 753 | 110 |
| Arusha | 1523 | 34 | 28 | 36 | 16 | 282 | 116 |
| Dodoma | 1951 | 20 | 12 | 27 | 7 | 399 | 237 |
| Iringa | 1649 | 8 | 8 | 17 | 7 | 336 | 283 |
| Kagera | 2293 | 5 | 5 | 16 | 6 | 252 | 195 |
| Lindi | 870 | 4 | 4 | 2 | 2 | 204 | 149 |
| Manyara | 1242 | 2 | 2 | 9 | 9 | 163 | 116 |
| Mara | 1631 | 4 | 4 | 4 | 4 | 245 | 177 |
| Mbeya | 2424 | 21 | 13 | 19 | 9 | 363 | 250 |
| Mtwara | 1246 | 8 | 8 | 4 | 4 | 183 | 146 |
| Mwanza | 3267 | 41 | 36 | 39 | 18 | 465 | 298 |
| Morogoro | 1975 | 12 | 6 | 17 | 7 | 300 | 185 |
| Kigoma | 1602 | 5 | 5 | 5 | 5 | 207 | 197 |
| Kilimanjaro | 1536 | 19 | 13 | 24 | 4 | 366 | 168 |
| Pwani | 992 | 6 | 6 | No data | No data | 238 | 196 |
| Ruvuma | 1268 | 1 | 1 | 7 | 7 | 241 | 179 |
| Singida | 1259 | 3 | 3 | 6 | 1 | 210 | 161 |
| Shinyanga | 3411 | 10 | 10 | 18 | 18 | 369 | 262 |
| Tabora | 2086 | 7 | 7 | 8 | 8 | 325 | 193 |
| Tanga | 1838 | 19 | 6 | 5 | 5 | 316 | 207 |
| Rukwa | 1350 | 2 | 2 | 3 | 3 | 211 | 171 |

Note that the numbers in private sector can be obtained by subtracting the numbers in public sector from the total numbers

Table 3.4.2. The density of pharmaceutical personnel and pharmacies per 10,000 population.

| Region | Pharmacists (per 10,000 population) | | Pharmaceutical Technicians (per 10,000 population) | | Pharmacies (per 10,000 population) | |
|---------------|--|------------------|--|------------------|---------------------------------------|------------------|
| | Total | Public Sector | Total | Public Sector | Total | Public Sector |
| National | 0.16 | 0.09 | 0.11 | 0.05 | 1.68 | 1.04 |
| Dar Es Salaam | 1.37 | 0.51 | 0.56 | 0.18 | 2.61 | 0.38 |
| Arusha | 0.22 | 0.18 | 0.24 | 0.11 | 1.85 | 0.76 |
| Dodoma | 0.10 | 0.06 | 0.14 | 0.04 | 2.05 | 1.21 |
| Iringa | 0.05 | 0.05 | 0.10 | 0.04 | 2.04 | 1.72 |
| Kagera | 0.02 | 0.02 | 0.07 | 0.03 | 1.10 | 0.85 |
| Lindi | 0.05 | 0.05 | 0.02 | 0.02 | 2.34 | 1.71 |
| Manyara | 0.02 | 0.02 | 0.07 | 0.07 | 1.31 | 0.93 |
| Mara | 0.02 | 0.02 | 0.02 | 0.02 | 1.50 | 1.09 |
| Mbeya | 0.09 | 0.05 | 0.08 | 0.04 | 1.50 | 1.03 |
| Mtwara | 0.06 | 0.06 | 0.03 | 0.03 | 1.47 | 1.17 |
| Mwanza | 0.13 | 0.11 | 0.12 | 0.06 | 1.42 | 0.91 |
| Morogoro | 0.06 | 0.03 | 0.09 | 0.04 | 1.52 | 0.94 |
| Kigoma | 0.03 | 0.03 | 0.03 | 0.03 | 1.29 | 1.23 |
| Kilimanjaro | 0.12 | 0.08 | 0.16 | 0.03 | 2.38 | 1.09 |
| Pwani | 0.06 | 0.06 | NA | NA | 2.40 | 1.98 |
| Ruvuma | 0.02 | 0.02 | 0.06 | 0.06 | 1.90 | 1.41 |
| Singida | 0.02 | 0.02 | 0.05 | 0.01 | 1.67 | 1.28 |
| Shinyanga | 0.03 | 0.03 | 0.05 | 0.05 | 1.08 | 0.77 |
| Tabora | 0.03 | 0.03 | 0.04 | 0.04 | 1.56 | 0.93 |
| Tanga | 0.10 | 0.03 | 0.03 | 0.03 | 1.72 | 1.13 |
| Rukwa | 0.01 | 0.01 | 0.02 | 0.02 | 1.56 | 1.27 |

3.5. Attrition of pharmaceutical personnel

The attrition rate of pharmacists in the country was observed to be very low. The data obtained from the Ministry of Health showed that only 5 Pharmacists left the public sector in the past 24 months among which only 2 joined the Multilateral NGOs and 2 migrated to abroad and only one was reported retired. Low level of attrition rate could

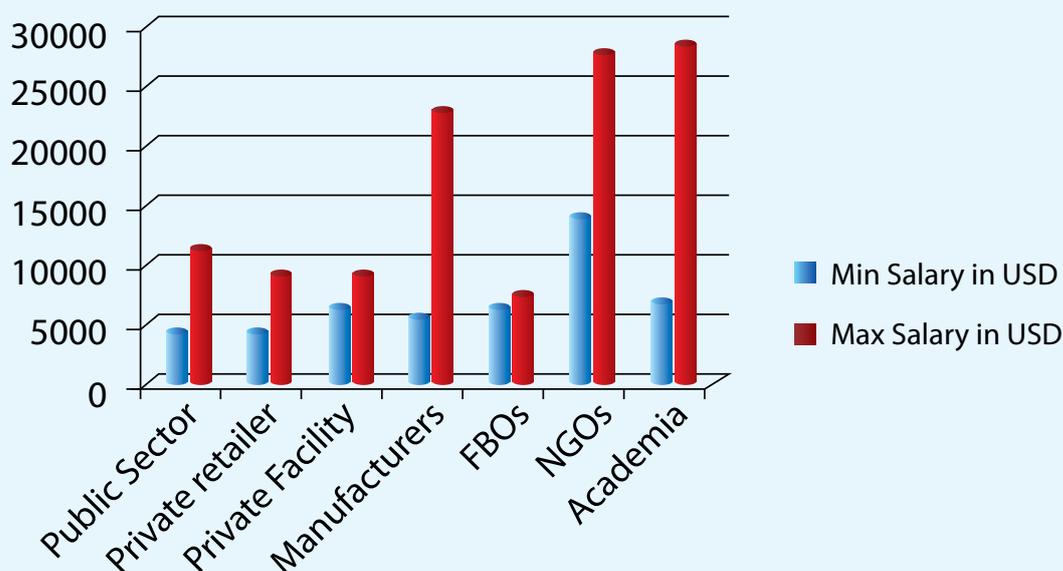
be explained by revised salary scales in public sector and attractive salaries in NGOs and therefore many personnel tend to move to these sectors within the country. In addition, some pharmacists studied other courses unrelated to pharmacy profession and could be absorbed by other systems in the country. The peace in the country which has been contributed by political stability is also contributory factor towards low attrition rate.

3.6. Salary scale for pharmacists

Figure 3.6.1 below shows pharmacist annual salaries in various workplaces. The pharmacists who work in the academia have the highest salary scale followed by those who work in the multilateral organizations and the least salary is seen in private retail pharmacies and FBOs.

The public health facilities and private retail have comparable minimum salaries but the maximum salary in the public sector was slightly higher than in retail pharmacies. Academic institutions have the highest maximum whereas the NGOs have highest starting salaries and it is the second highest max after training institutions.

Fig 3.6.1. Annual Salary in USD of pharmacists in various workplaces.



3.7. Pharmacy education

3.7.1 Number of training institutions for pharmaceutical personnel

At the time of this assessment, there were only two Pharmacy Schools which offered a BPharm Degree. The School of Pharmacy at Muhimbili University of Health and Allied Sciences (MUHAS) is a public sector institution and St John's University of Tanzania (SJUT) which belongs to the Anglican Church of Tanzania. MUHAS which was established in 1974, has been the only Pharmacy School in the country until 2007 when another pharmacy school at SJUT was established.

There are two Pharmaceutical Technician schools currently 2 one being a public sector institution and the other one belonging to a faith based organization. The public sector Pharmaceutical Technician school is also located at Muhimbili in Dar Es Salaam is accredited by MUHAS but is under the Ministry of Health and Social Welfare. St Luke's School of Pharmacy is located in Kilimanjaro and has been producing pharmaceutical assistants (certificate level) and it has recently started offering diploma training (pharmaceutical technicians).

There were only 52 employed lecturers across all pharmacy schools in the country out of which about 50% were employed full time at the school of Pharmacy in MUHAS. The biggest challenge was financial constraints as only a small proportion of the money requested by the MUHAS was released by the Ministry of Finance. Physical infrastructure and lack of lecturers for various pharmaceutical disciplines were among the biggest challenges limiting the absorption capacity of School of Pharmacy at MUHAS. At SJUT, lack of money to equip teaching laboratories and few lecturers with required qualifications to teach higher learning institutions in pharmacy are among the biggest challenges facing the school of Pharmacy. The school is run by the faith based organisation which heavily depends on donations. Figure 3.7.1.1 below describes the number of higher learning institutions offering degrees for health related disciplines in the country.

3.7.2. Capacity of training institutions

The enrollment capacity of most of the pharmaceutical training institutions in the country is still very low as compared to the demand. Going through the data as of 2006 to 2008 it was seen that each year the number of applicants for various pharmaceutical courses greatly exceeded the number of those who managed to obtain admission in the respective schools. The oldest Pharmacy school which started in 1970's currently produces graduates to a range of only 30-45 students per year for first degree. So far there is only one School of Pharmacy which offers Master and PhD degrees and only 1 offering certificate training for Pharmaceutical Assistants with an average output of 19 students.

Tables 3.7.2.1 and 3.7.2.2 demonstrate the numbers of applicants for various pharmaceutical courses in relation to enrolments from the currently existing schools.

Table 3.7.2.1 Number of Pharmacy Students between 2006 -2008

| Degree program | Year | | |
|-------------------|------|------|------|
| | 2006 | 2007 | 2008 |
| Bpharm Applicants | 247 | 306 | 517 |
| Bpharm Enrollees | 47 | 80 | 110 |
| Mpharm applicants | 1 | 4 | 6 |
| Mpharm enrollees | 1 | 1 | 2 |

Table 3.7.2.2 Number of Pharmaceutical technician Students between 2006 -2008

| Program | Year | | |
|--------------------------------------|------|------|------|
| | 2006 | 2007 | 2008 |
| Pharmaceutical technician Applicants | 612 | 620 | 806 |
| Pharmaceutical technician Enrollees | 52 | 62 | 64 |
| Pharmaceutical assistant Applicants | 35 | 46 | 57 |
| Pharmaceutical assistant Enrollees | 22 | 23 | 31 |

MUHAS currently produces 30-45 graduates per year for the BPharm degree. So far MUHAS is the only School of Pharmacy that offers Master and PhD degrees. Only one training institution offers certificate training for Pharmaceutical Assistants with an average output of 19 students per year.

3.8 Health Facility distribution of pharmacy personnel

3.8.1. Category of staff providing services at facilities

Table 3.8.1.1 shows the distribution of pharmaceutical personnel at the health facilities in terms of age and sex. It can be noted that the majority of pharmaceutical staff are male and belonged to the 30 - 49 years age group. It can also be noted from this table that the number of females working as pharmaceutical assistants was highest in comparison to other pharmaceutical cadres .

Table 3.8.1.1 Pharmaceutical cadres in the facilities.

| Category | Total | Male | Female | <30yrs | 30 - 49 yrs | 50 yrs + | Regular | Temporary |
|------------------|-------|------|--------|--------|-------------|----------|---------|-----------|
| Pharmacists | 124 | 90 | 34 | 22 | 82 | 20 | 116 | 8 |
| Pharm techs | 135 | 86 | 49 | 30 | 86 | 19 | 126 | 9 |
| Pharm assts | 77 | 49 | 30 | 14 | 44 | 19 | 73 | 4 |
| Pharm attendants | 209 | 70 | 139 | 77 | 102 | 23 | 200 | 7 |

The majority of pharmaceutical staff were male and their age ranged between 30-49 years (table 3.8.1.1).

The majority of the cadres were reported to dispense medicines and manage pharmaceutical stocks. However, in one region, the pharmaceutical personnel were found prescribing due to the shortage of clinicians.

Apart from Pharmaceutical cadres (pharmacists, Pharmaceutical technicians, Pharmaceutical assistants and Pharmaceutical attendants), doctors, laboratory technicians, and other clinical workers such as clinical officers, counselors, nurses and midwives were also providing pharmaceutical services at the facilities visited.

Table 3.8.1.2 Job performance of various personnel at health facilities.

| Category of staff | Dispensing | Prescribing | Stock management | Quantification | Lab work | Compounding |
|-------------------|------------|-------------|------------------|----------------|----------|-------------|
| Pharmacists | 59 | 2 | 64 | 62 | 3 | 15 |
| Pharm techs | 56 | 1 | 51 | 48 | 2 | 15 |
| Pharm assts | 56 | 0 | 44 | 33 | 2 | 9 |
| Pharm attendants | 49 | 3 | 36 | 19 | 1 | 4 |
| Physicians | 3 | 68 | 5 | 24 | 1 | 1 |
| Nurses/midwives | 143 | 33 | 96 | 90 | 12 | 3 |
| CHWs | 9 | 3 | 5 | 4 | 2 | 0 |
| Other | 64 | 123 | 67 | 78 | 47 | 2 |

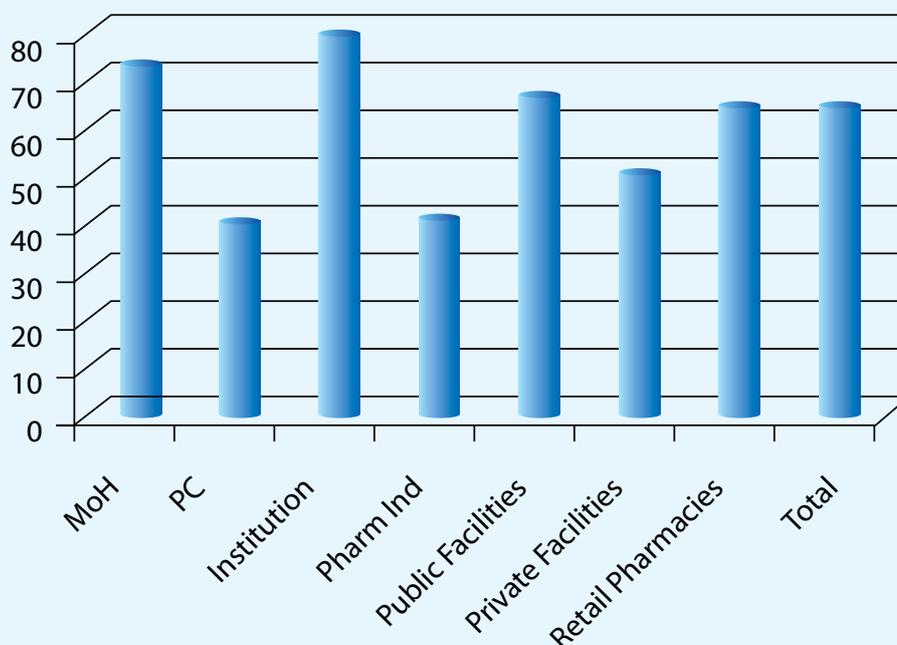
3.8.2. Working conditions of pharmacist at facility level

3.8.2.1. Opportunities for continuing education

Most pharmacists had opportunities to receive continuing education. Figure 3.8.2.1 below shows the proportion of pharmacists who obtained continuing education in one or more courses in the last 12 months (data collected in June 2009). The

Pharmacy Council has now made a pre-requisite for all pharmacists to attend at least one continuing education course per year in order to retain their names in the registry as active pharmacists.

Fig 3.8.2.1. Percentage of pharmacists who attended continuing education by workplace within the past 12 months (June 2009)

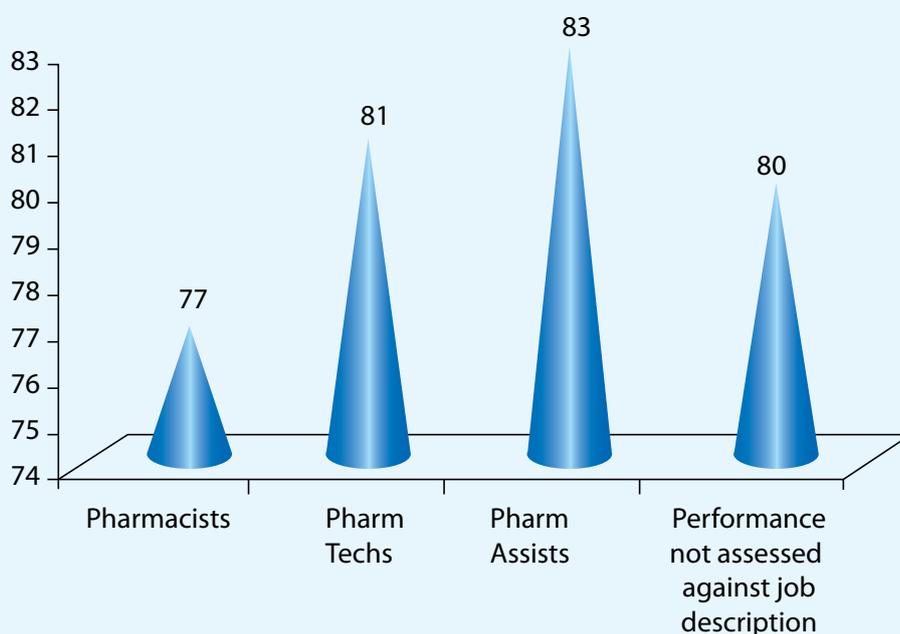


MOH= Ministry of Health, PC= Pharmacy Council

3.8.3. Job description

The majority of the facilities visited had no job descriptions for their pharmaceutical personnel. Job descriptions are also not used by most of the facilities to evaluate the performance of their pharmaceutical personnel. Figure 3.8.3.1 below shows the percentage of facilities without job descriptions for their pharmaceutical personnel.

Fig 3.8.3.1 Percentage of facilities without job descriptions for pharmaceutical cadres.



3.9. Job satisfaction

To assess job satisfaction various parameters including salaries, intention of moving from one job to another, opportunities to receive continuing education, personal fulfillment and other benefits they receive at work were explored.

3.9.1. Salaries

As illustrated in figure 3.6.1 above, there was a big variation in terms of salaries paid to pharmacists by different employers. The lowest paid pharmacists are those who were working in FBOs and private retail pharmacies.

The minimum and maximum salary of the pharmacists is much lower than that of medical doctor than expected (minimum USD 4,222 vs 5,333 and maximum USD 11,111 vs 13,333 despite having a difference of only 1 year training (fig 3.9.1.1.) Medical doctors in Tanzania undergo a 5 years training compared to 4 years of pharmacy training. In this regard, the difference in payment between the two cadres would be only a one year increment. In general, there is no motivation for joining a pharmacy profession since despite having low maximum salary, it still takes more than 15 year or more to reach the peak and majority were found hanging within middle scale.

Fig 3.9.1.1. below compares the salary scales between pharmacists medical doctors in public sector.

Fig 3.91.1. Comparison of annual salaries between pharmacists medical doctors in public sector (data 2009).



3.9.3. Personal fulfillment

Through this study various aspects which contribute to the achievement of personal fulfillment at work place were investigated. Such aspects included availability of opportunities to improve skills, fair pays offered by employers, consideration of employees` suggestions by their employers and many others. A considerable number of pharmacists amongst those interviewed showed not to have low job satisfaction as it can be seen in the table 3.9.1 below.

Table 3.9.3.1. Percentages of Pharmacists who agreed or disagreed to questions which inquired their fulfillment at workplaces (N =115)

| Personal fulfillment | Improve skills | Career aspirations | Challenging / interesting | Training in critical skills | Opportunities fair | Career path/fair | Suggestions considered | Fair pay |
|----------------------|----------------|--------------------|---------------------------|-----------------------------|------------------------|------------------|------------------------|------------|
| Disagree | 27% | 16% | 5% | 38% | 38% | 32% | 31% | 42% |
| Personal fulfillment | Adequate pay | Fair raises | No support worries | Regular feed-back | Bureaucratic processes | Have resources | Genuine concern | - |
| Disagree | 48% | 42% | 48% | 37% | 47% | 29% | 24% | - |

3.9.4 Safety and harassment on the work-place

There was no threat for harassment by co-workers and supervisors at the work place among the interviewed pharmacists in the visited facilities and the safety was not seen as an issue in these facilities. However, safety issues pertinent with biohazards and other risks in working environment were not explicitly captured in this survey. Table 3.9.4.1 below summarizes the extent to which the interviewed pharmacists faced harassment at their work and whether they are sure that punitive measures would be taken against those who harass them.

Table 3.9.4.1 Percentage of pharmacists who have been harassed and those who believe that those who harass them would be punished (n=115).

| Safety/harassment | Punished | Supervisor | Other employee | Safe travel |
|-------------------|----------|------------|----------------|-------------|
| Yes | 81 | 23 | 11 | 76 |
| % Yes | 70% | 20% | 10% | 66% |

3.9.5 Benefits at work

It was observed that few pharmacists enjoy social benefits from their employers, the majority receive partial medical coverage and very few obtain risk allowance.

Table 3.9.5.1 below gives the picture of benefits received by pharmacists from their employers amongst those who responded to our study questions

Table 3.9.5.1. Benefits received by pharmacists from their employers n=115

| Type of Benefit | Free medical coverage | Partial medical coverage | Housing allowance | Risk allowance | Food allowance | Travel allowance | School fee allowance |
|----------------------------|-----------------------|--------------------------|-------------------|----------------|----------------|------------------|----------------------|
| No of Pharmacist receiving | 24 | 64 | 46 | 6 | 51 | 28 | 8 |
| Percentage | 21% | 56% | 40% | 5% | 44% | 24% | 7% |

3.9.6 Concerns on changing workplace

Fig 3.9.6.1. below indicate the proportion of pharmacists who considered moving to other places in the past 5 years. About 51% of the total pharmacists who were interviewed admitted to have considered changing their job for one or more reasons. Ministry of health had the largest percentage (79%) of pharmacist who considered changing their jobs while public facilities had the least number (40%). The greatest proportion of those who considered changing their job preferred joining Donor/ NGO based organizations (51%) while the least preferred their destiny to be private retail sector (2%). The consideration to move from one setting to another and the destination is reflected by table 3.9.6.1.

Fig 3.9.6.1. Percentage of pharmacists from different working places who intended to change jobs

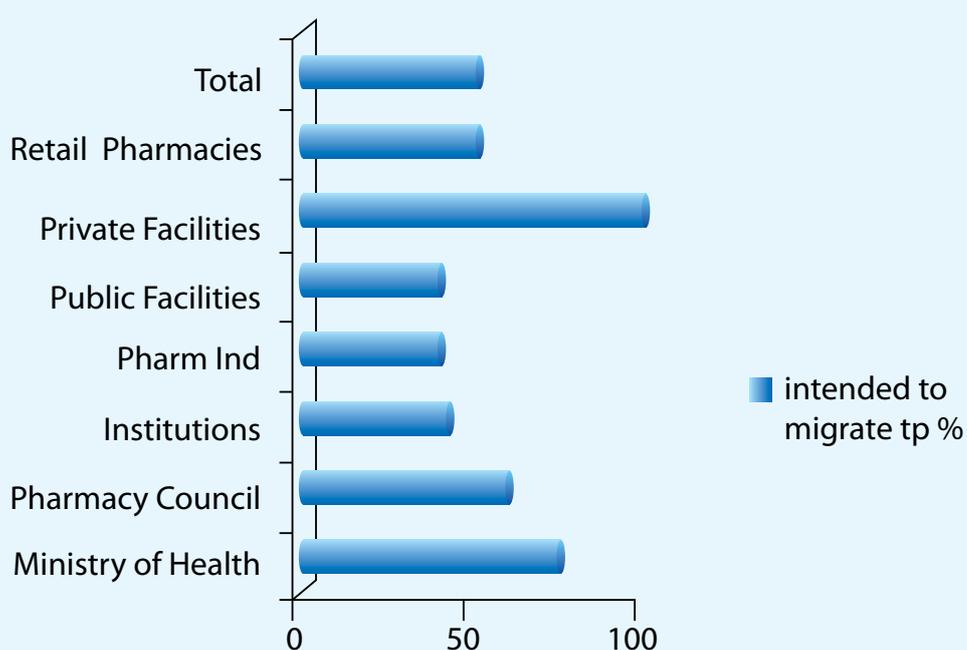


Table 3.9.6.1. Number of pharmacists in different settings considering moving to particular destinations

| Setting of Origin | Destination Setting | | | | | | | | Number desiring to change job | n |
|-------------------|---------------------|-------------------------|----------------|--------------|--------------------------|------------|----------|----------|-------------------------------|------------|
| | Public sector | Private health facility | Private retail | Manufacturer | Faith-based organization | Donor/ NGO | Abroad | Other | | |
| Educator | 1 | 0 | 0 | 0 | 1 | 5 | 2 | 0 | 9 | 19 |
| Manufacturer | 0 | 1 | 1 | 1 | 0 | 2 | 1 | 1 | 7 | 17 |
| Public Sector | 6 | 1 | 0 | 10 | 2 | 18 | 1 | 3 | 32 | 59 |
| Private Facility | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 4 | 6 |
| Retailer | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 7 | 14 |
| TOTAL | 10 | 2 | 1 | 2 | 4 | 30 | 5 | 5 | 59 | 115 |

3.9.7 Pharmacists movements

In the last 2 years (data collected in June 2009) there had been insignificant movement of pharmacist from the country to abroad and within the country between employers. Private facilities took the lead amongst the facilities visited in having their pharmacists migrating to multilateral NGO while public facilities had the least number of such occasions. In terms of the number of pharmacists moving abroad manufacturers and private facilities had almost equal numbers while public facilities had a lower number as compared to that of the former.

4. Discussions and Recommendations

Access to quality and efficacious medicines is crucial for improving the health of the population and this in turn plays a role in development of national economy and therefore poverty alleviation. In this regard, the pharmaceutical personnel has a major role towards making these goals become realistic. Lack of comprehensive data on pharmaceutical personnel in the pharmaceutical sector is a challenge in national Human Resource policies in most developing countries (Dayrit et al, 2006). Consequently, national plans and budgets fail to adequately provide for the required investment in training, deployment and continuous development of pharmaceutical personnel as a social and economic priority. Studies have shown that, the pharmacy profession is not always given an important weight in the planning and even resources allocation by the Ministries of health in developing world (Wuliji, 2009).

This study observed that, there was weakness in data management of health workforce at the central and facility level. Lack of updated data for health workforce creates difficulty in appropriate planning of recruitment, expansion of schools, distribution of personnel and forecasting the growth of the profession in the public as well as private sector.

The Pharmacy Council should consider validating the database by doing physical follow up of pharmaceutical personnel in collaboration with District and Regional Pharmacists. This can be maintained by strengthening information flow from district and regional pharmacists. The pharmaceutical personnel should inform the Pharmacy Council in case of changes of the employer or workplace. In so doing, the Pharmacy Council will then serve as reliable source of database for pharmaceutical personnel for all relevant departments and sections at the MOHSW.

Currently, there are 5241 pharmacies in total in the country but the total number of pharmaceutical human resources (pharmacists, pharmaceutical technicians and pharmaceutical assistants) was only 1506. The number of pharmaceutical personnel is just 29% (1506/5241) in relation to the total number of all pharmacies in the country. This means, as many as 71% of the pharmacies are served by other cadres outside the pharmacy profession. It should also be noted that, up to the year 2009, the total number of retail private and wholesale pharmacies was 1036 but there were only about 700 pharmacists in total (table 3.3.1). The Tanzanian Food and Drug Administration requires that only those retail and wholesale pharmacies who have registered pharmacists will be allowed to operate the business of pharmacy and only one pharmacist can supervise one pharmacy premise. However, even if all pharmacists in the country were to work in retail and wholesale pharmacies, still there would be about 300 pharmacies operating a business of pharmacy without a pharmacists' supervision.

There is uneven distribution of pharmacies and pharmaceutical human resources between urban and rural, private and public sectors in the country. Very few pharmacists and pharmaceutical technicians are currently working in rural or remote locations compared with urban environments. Imbalances in considering challenges underlying pharmacy workforce compared to other health professionals when developing health workforce plan has a negative impact on the expansion of pharmacy profession as well as effective provision of pharmacy services in many countries (Dayrit et al, 2006). For instance, in Rukwa alone- a remote and underserved region, the density of pharmacy workforce per 10,000 population is 0.01 as compared to 1.37 in Dar Es Salaam (largest city in the country). Nationally the density of pharmacists per 10,000 population is 0.18. African countries have been reported to have on average a density of 0.8 pharmacists per 10,000 population and in America, this ratio reaches 5.4 (Dayrit et al, 2006). The low number of pharmacists as compared to high number of pharmacies could be attributed to a situation of “officially employed” and “physically absent pharmacists” resulting in staffing by minimally trained or untrained persons (Goel, et al, 1996). Another concern is the uneven distribution of pharmaceutical personnel in various drug outlets even in urban areas. Fig 3.3.1. shows that, the majority of pharmacists were employed in public sector. The MOHSW underlines the importance of the public and private sectors in the delivery of health services in the country. Uneven distribution of pharmaceutical personnel will undermine equitable access and availability of medicines to some communities in the country and therefore deter the reduction of morbidity and mortality in the country.

The study has revealed a low attrition rate of pharmacists moving from the country and within the country but there were some intentions of pharmacists to move to other sectors of practice within the country in the future. With the HIV/AIDS pandemic, a number of international NGOs have been established in the country and they offer salaries nearly 3 times greater than that given by the public or the private pharmacies. In addition to higher salary scales, the pharmacists working in these NGOs enjoy a good package of fringe benefits (table 3.9.5.1.).

As table 3.2.1 shows, until June 2009, there were 5241 pharmacies as compared to only 703 pharmacists registered to practice in the country. The act of dispensing medicines goes beyond simply giving packed drugs to patients. It involves receiving the prescription, validating it, filling, and providing correct information on the use of medicines. It also involves giving warning on contraindications and adverse events likely to be experienced by a patient, how to manage these events and ways to avoid drug interactions (Buurma et al, 2006). Misinformation on the drug uses has been reported to be caused by untrained personnel in provision of medicines to patients (Wolf-Gould, 1991, Goel et al, 1996). Involvement of untrained personnel in the provision of medical service has been blamed to be the cause of irrational use of medicines the consequence of which could be treatment failure, overdosing and drug resistance (Pongradith et al, 1993, Le Grand et al, 1999).

The major reasons given by most pharmacists intending to leave the private sector was poor salary scales and lack of annual increment. The salaries in private pharmacies and hospitals are based on individual negotiation and the agreed figure between the employer and the employees may remain stagnant for more than 10 years. Some of the private facilities have been reluctant to employ pharmacies due to costs implications and run their business using nurse assistants. The Pharmacy Council and Tanzanian Food and Drug Administration have a role in ensuring that law pertaining handling of prescription only medicines is reinforced to capture all areas in which pharmacy transactions take place.

Fig 3.9.1.1. reflects the minimum and maximum salaries paid to pharmacists and medical doctors by public facilities in the country. Pharmacist salaries appear to be inequitable in comparison to other health cadres such as physicians.. Medical doctors in Tanzania undergo a 5 years training compared to 4 years of pharmacy training. In this regard, one would assume that the the difference in payment between the two cadres would be only minimum such as a one year increment. In addition to having non-attractive salary scale, it still takes more than 15 years to reach the peak of the salary scale for pharmacists and majority are still hanging within middle scale. Pharmacists are given only one year increment even after completing their master degrees as opposed to other cadres such as medical doctors who after their completing the masters in Medicine, they become specialists and they move to higher salary scales. This contributes to demotivating the pharmacists from undergoing higher degree training.

Lack of job description for pharmaceutical personnel working in health facilities indicates lack accountability and confusion in responsibilities and functions of various categories of pharmacy cadres. In such situation, it is apparent that pharmacists may be assigned to perform duties which are supposed to be executed by lower pharmaceutical cadres and vice versa. In some of the facilities, the performance was not considered a criterion for promotion. Lack of job descriptions and consideration of performance in the promotion process are primary demotivating factors for a worker who would want to excel in his/her duties. This in turn discourages an individual from aspiring to undertake higher training and this has a negative impact for a facility seeking to improve the provision of services. A study conducted recently in a Ghana among final year pharmacy students indicated professional recognition as motivating factor. In this study, the respondents viewed themselves and wished to be viewed by others as health professionals capable of applying their clinical knowledge (Owusu-Daaku et al, 2008).

The pharmacy schools in the country have an exclusive role in the growth of the number of personnel with adequate qualification to deliver health services to patients. However, the Pharmacy Schools in the country are overwhelmed by high number of applicants as

opposed to their absorption capacities. There is an imbalance between the number of applicants for Bachelor of Pharmacy degree and the capacity of the Schools of pharmacy to enrol the applicants. The biggest challenges were lack of adequate infrastructure and financial constraints. The greatest challenges are facing the new Pharmacy School which was established in 2007 in Dodoma. This school started recruiting students for the Bachelor of Pharmacy degree with only one lecturer with a pharmaceutical background and it has continued to face difficulties in the recruitment and retention of academic faculty who meet the requirements stipulated by Tanzania Commission for Universities (only those with excellent examination results in their first degree are allowed to teach at the university). As indicated earlier, pharmacists working in academia are well paid as compared to those working elsewhere in the country. The private universities must consider a package of financial and non-financial incentives in order to ensure retention.

Nevertheless, SJUT has already overtaken the oldest school at MUHAS in terms of the number of enrollees despite facing such challenges. Increasing the number of enrolments without improving the teaching infrastructure and human resource may compromise the quality of education (Taylor et al, 2004) . Other schools in Kilimanjaro and Mwanza and even the one at MUHAS, initially started by offering certificate (pharmaceutical assistant) courses and slowly they were transformed into pharmaceutical technicians schools after building their own capacities in terms of infrastructure and academic staff.

The number of academic staff at MUHAS is still low comparing to the demand of expansion of the number of enrolments per year. Academic capacity is a major issue for all pharmacy education providers. About 25% of the academic members in MUHAS are on the verge of retiring and there is no improvement in terms of the recruitment of a new generation of young academics. It is not clear whether the issue of poor recruitment is due to the tight criteria for joining academia or lack of a supporting environment to foster the growth of young academics. Recently, Sheaffer et al reported on the motivating and deterring variables associated with considering a career in academic pharmacy in the United States (Sheaffer et al, 2008). A similar study will be required to be conducted in Tanzania to determine the potential reasons for lack of lecturers in pharmacy schools despite the oldest school at MUHAS being in operation for more than 30 years. The School of Pharmacy at MUHAS, being the oldest and most experienced school, has a role of generating teaching staff to new pharmacy schools and this can only be accomplished by improving the learning environments of postgraduate programs and motivating undergraduate students to develop interest in academia. At the moment, the number of post graduates enrollees at the SoP at MUHAS is very low.

The scaling up and quality improvement of pharmacy education and training are essential for addressing workforce shortages and for meeting basic health needs in the country. As mentioned before, there is growing demand of clinical oriented pharmacists who can

work in the multidisciplinary team in making treatment decision with doctors and nurses. This calls for a review of Pharmacy School curricula and capacity building of teaching staff to meet such transformations.

The schools of pharmacy have not yet started providing structured continuing education for pharmaceutical personnel in the country. The academic institutions should become as important centres for conducting need assessments of pharmaceutical personnel in the country and therefore design and run appropriate continuing education programs so as to build capacity of the pharmaceutical workforce and enable the personnel to cope up with new innovations in the field of pharmacy.

Until July, 2009, there were 5 medical universities in the country among which 4 were private Schools while there was only one private pharmacy school. Recently, Anderson et al, wrote a commentary on human resource for health in which the multifaceted nature of the challenges facing the pharmacy profession have been discussed (Anderson et al, 2009).

This study was undertaken in order to determine various issues related to job satisfaction of the pharmaceutical personnel in Tanzania as well as the total workforce providing pharmaceutical services both in the public and private sectors.

It can be concluded that the pharmacy profession in Tanzania is faced by problems which are multifaceted. Low number of pharmacists in the country is contributed by many factors including few number of pharmacy schools in the country and lack of government efforts to attract investors in the business of pharmacy education. Low motivation even after masters degree, lack of job description and poor salary motivation as well as lack of fringe benefits has contributed to dissatisfaction of many pharmaceutical personnel working in the public and private institution. Uneven distribution of pharmacists between urban and rural areas is high and is a reflection of lack of motivating working environments in the rural areas as the result many positions remain vacant.

4.2. Recommendations for pharmaceutical human resources development

- Improved pharmacy workforce planning, training and education is needed in order prepare an adequate number of competent pharmacists in the country. A dedicated person within the Ministry of Health should be appointed to handle issues of pharmacy workforce planning. .
- It is important to improve the salary structure for those prepared to work in the underserved areas and to introduce incentives such as accelerated promotion scheme, reduced income taxes, provision of housing allowances, transport, and

school fees for the children of the personnel and other attracting fringe benefits to enhance retention.

- A coordinated effort to enhance pharmacy workforce planning, training and education is needed in order prepare an adequate number of competent pharmacists in the country.
- Health facility managers (including chief Pharmacists) need to clearly define the roles and responsibilities of each cadre in the provision of pharmaceutical services to avoid significant overlap of functions between cadres. Mechanisms to monitor job performance and link it with motivating techniques such as praise, recognition and award promotion should be enforced.
- The government in collaboration with development partners and other stakeholders should work out modalities to attract investors in the establishment of new pharmacy schools.
- The government should encourage new medical schools established to include pharmacy schools in the plan. This is because lecture rooms, lecturers, library facilities as well as some laboratory facilities can be easily shared. The higher learning institutions should review their curriculum to enhance patient care disciplines and ensure needs-based education development. To cope with such transformations, there will be a need to build the capacity of the teaching staff in such new disciplines.
- The pharmacy schools in collaboration with PC and other stakeholders should be frontline in designing and instituting well structured continuing education programs so as to provide the needed support for the pharmaceutical personnel in coping with developments in medicines.
- The oldest school of pharmacy at MUHAS should expand its capacity both in terms of human resource and infrastructure so that it can be able to serve as hub for supporting new emerging pharmacy schools in the country. One approach is to design postgraduate courses that attract candidates who in turn will serve as academic faculty for new pharmacy schools.

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Ministry of Health and Social Welfare

Pharmaceutical Human Resources Consultation Report

Towards a Strategic Development Framework

2010

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Acronyms

| | |
|---------|--|
| ADDO | Accredited Drug Dispensing Outlet |
| CPD | Continuing Professional Development |
| DAP | Director of Administration and Personnel |
| FIP | International Pharmaceutical Federation |
| HESLB | Higher Education Students Loan Board |
| HRD | Human Resources Department, Ministry of Health and Social Welfare |
| HRHSP | Human Resources for Health Strategic Plan |
| MOEVT | Ministry of Education and Vocational Training |
| MOFEA | Ministry of Finance and Economic Affairs |
| MOHSW | Ministry of Health and Social Welfare |
| MOLYD | Ministry of Labour and Youth Development |
| MUHAS | Muhimbili University of Health and Allied Sciences |
| NACTE | National Accreditation Council for Technical Education |
| PC | Pharmacy Council, Ministry of Health and Social Welfare |
| PhD | Doctor of Philosophy (doctoral degree) |
| PMORALG | Prime Minister's Office for Regional Administration and Local Government |
| POPSM | President's Office Public Service Management |
| PST | Pharmaceutical Society of Tanzania |
| PSU | Pharmaceutical Services Unit, Ministry of Health and Social Welfare |
| TAPhATA | Tanzania Pharmaceutical Assistants and Technicians Association |
| TCU | Tanzania Commission for Universities |
| UCSF | University of California San Francisco, United States of America |
| ZHRC | Zonal Health Resource Centre |
| WHO | World Health Organization |

Key messages

- Access to quality medicines and competent healthcare providers are fundamental aspects of the healthcare system. Pharmaceutical human resources are responsible for the management, supply and use of medicines and are vital components of the architecture to improve access to medicines.
- Pharmaceutical human resource shortage, inequitable distribution and skill mix imbalances are priority issues which need to be addressed in order to improve access to quality essential medicines and rational use.
- The 2010 Pharmaceutical Human Resources Consultation brought together forty participants representing stakeholders such as MOHSW, regulatory bodies, professional bodies, training institutions, development partners, manufacturers, employers, pharmacists, technicians and assistants to actively formulate a strategic framework to address the pharmaceutical human resources crisis.
- The Pharmaceutical Human Resources Strategic Framework 2011 – 2020 was developed by the stakeholders and unanimously agreed upon by all participants. It defines policy objectives, processes, stakeholders, opportunities and barriers to provide a comprehensive blueprint for further planning and implementation.
- Significant opportunities exist to scale up pharmaceutical human resources in Tanzania through public-private partnerships, collaboration with existing institutions and utilisation of Zonal Health Resource Centres.



Consensus on draft strategic framework developed by consultation participants

1. Background

1.1 Introduction

Access to quality medicines and competent healthcare providers are fundamental aspects of the healthcare system. Expenditure on medicines is second only to human resources in the Ministry of Health and Social Welfare's budget such that around 10% is invested into these critical tools. Pharmaceutical human resources are primarily responsible for the management, supply and use of medicines and are vital components of the architecture to improve access to medicines.

"Capacity to forecast and quantify needs in public health facilities at all is low... Shortage of qualified pharmaceutical staff is critical in both the public and private sectors. Irrational use of pharmaceuticals and medical supplies remains a challenge."

Health Sector Strategic Plan III 2009 - 2015

The Pharmaceutical Human Resources Consultation was held to discuss the pharmaceutical human resource shortage with key stakeholders and identify strategies to strengthen the capacity of the pharmaceutical sector to improve access to medicines. This section provides a summary of the pharmaceutical human resources situation based on an assessment conducted by the MOHSW in June 2009.

1.2 Pharmaceutical human resources in Tanzania

The human resources for health crisis affects 57 countries worldwide, including Tanzania (1). The MOHSW Human Resources for Health Strategic Plan 2008 – 2013(2) estimated that public and private dispensaries alone were staffed by 31% and 16% respectively of the required workforce.

Pharmacists, pharmaceutical technicians and pharmaceutical assistants are often the first point of contact for patients in the community and are important providers of medicines, medicines advice and counselling.

Pharmaceutical human resources in Tanzania are required to provide pharmaceutical services as diverse as procurement, compounding, dispensing, medicines information and advice, therapeutic drug monitoring, pharmacovigilance, manufacturing, training and research. The advent of HIV/AIDS has significantly increased demand for pharmaceutical services such that many health programmes including the pharmaceutical sector have consistently experienced shortages of suitable personnel. Pharmaceutical human

resource shortages have been found to be one of the major constraints in achieving the intended objective of the National Medicine Policy.

The Ministry of Health and Social Welfare (MOHSW) in collaboration with the World Health Organization (WHO), conducted an assessment of pharmaceutical human resources between June – August 2009 in Tanzania. This assessment sought to determine the total workforce providing pharmaceutical services in both the public and private sectors. Seven administrative regions in the country were surveyed and from each region including 15 public health facilities and 15 private facilities. Human Resource Managers and other senior officials at the Ministry of Health, Pharmacy Council, Hospitals and health facilities, Pharmaceutical Industries and Pharmacy Schools were interviewed on the data of their personnel using various questionnaires. The assessment report was published in March 2010 and its findings released at the Consultation (3).

This assessment identified a total of 640 pharmacists (1 per 50,000 population), 479 pharmacy technicians (1 per 80,000), and 376 pharmacy assistants (1 per 100,000). The public sector and private retail pharmacies (defined in this study as any premise dispensing prescription medicines) were found to employ 44% and 23% of pharmacists respectively. Tables 1 and 2 describe the pharmaceutical human resources levels and breakdown by employment sector.

Table 1. Total pharmaceutical human resources 2007 – 2009

| Cadre | 2007 | 2008 | 2009 |
|----------------------------|------|------|------|
| Pharmacists | 568 | 593 | 640 |
| Pharmaceutical technicians | 369 | 402 | 479 |
| Pharmaceutical assistants | 315 | 327 | 376 |

Data source: MOHSW/Pharmacy Council. Assessment of Pharmaceutical Human Resources (3).

Table 1. Total pharmaceutical human resources 2007 – 2009

| Sector | Number of pharmacists (N=640) | % |
|-------------------------------|-------------------------------|-----|
| Public sector | 280 | 44% |
| Private-for-profit facilities | 20 | 3% |
| Private retail pharmacies | 146 | 23% |
| Private wholesalers | 80 | 13% |
| Pharmaceutical manufacturers | 20 | 3% |
| Academia/teaching | 50 | 8% |
| Faith-based health facilities | 10 | 2% |
| Multilateral/bilateral/NGOs | 16 | 3% |
| Not currently working | 18 | 3% |

Data source: MOHSW/Pharmacy Council. Assessment of Pharmaceutical Human Resources (3).

Table 3. Total number of pharmacies (premises providing pharmaceutical services)

| Type of Premises | Number | % |
|--------------------|-------------|--------------|
| Public pharmacies | 4185 | 61% |
| Private facilities | 659 | 10% |
| NGO | 155 | 2% |
| Faith-based | 853 | 12% |
| Wholesalers | 375 | 5% |
| Private retail | 661 | 10% |
| Total | 5241 | 100 % |

Assessment of Pharmaceutical Human Resources (3).

There are 5241 pharmacies in total in the country (Table 3) but only 1506 pharmacists, pharmaceutical technicians and assistants (pharmaceutical human resources). If human resources were evenly distributed across all pharmacies, only 29% would be staffed. This means that pharmaceutical services are provided by unqualified personnel in over 70% of premises providing pharmaceutical services. It is perhaps unsurprising that 40%, 58% and 70% of 187 surveyed facilities reported one or more vacancies for pharmacists, pharmacy technicians and pharmaceutical assistants. These facilities alone expressed shortages of over 500 personnel (Table 4). Alarming, they represent less than 5% of all premises providing pharmaceutical services in Tanzania.

Table 4. Total number of filled and vacant positions, and vacancy rate by facility type and cadre

| Facility type | Pharmacist | | | Technician | | | Assistant | | |
|-------------------------|------------|--------|------------------|------------|--------|------------------|-----------|--------|------------------|
| | Filled | Vacant | Vacancy rate (%) | Filled | Vacant | Vacancy rate (%) | Filled | Vacant | Vacancy rate (%) |
| Public | 54 | 65 | 55 | 88 | 113 | 56 | 41 | 138 | 77 |
| Private facility | 18 | 33 | 65 | 22 | 44 | 67 | 28 | 54 | 66 |
| Private retail | 28 | 3 | 10 | 18 | 20 | 53 | 7 | 14 | 67 |
| Manufacturer | 25 | 11 | 34 | 7 | 26 | 79 | 1 | 8 | 89 |
| Total | 125 | 112 | 47 | 135 | 203 | 60 | 77 | 214 | 74 |

Assessment of Pharmaceutical Human Resources (3).

The shortage of pharmaceutical personnel and their distribution is exacerbated in rural areas. This has led to inequitable service provision. To ensure that only quality products are made available to the population, functional and well-resourced pharmaceutical supply and regulatory systems are required, with adequate numbers of trained personnel.

Pharmaceutical cadres were found to be concentrated in urban regions with the ratio of personnel per 10,000 population in each region ranging between 0.01- 1.37 for pharmacists and 0.02-0.56 for pharmacy technicians.

Lack of comprehensive data on pharmaceutical personnel in the pharmaceutical sector is a gap in national Human Resource policies in most developing countries. Despite their critical importance, information about pharmaceutical human resources is inadequate. This serves as a barrier to strategic planning of human resources and the delivery of pharmaceutical services.

There were two Universities training institutions for pharmacists (Bachelor of Pharmacy degree) with a combined intake of 100 in 2009, two pharmacy technician training schools (diploma) enrolling 90 and one pharmaceutical assistant program enrolling 20. There is insufficient capacity for expansion given significant inadequacies in physical infrastructure, academic human resources and budgets. Consequently, despite increasing demand for training only 21% and 8% applicants to the pharmacy degree and pharmacy technician diploma programs were admitted in 2008 (Table 5). It is also important to note that about 25% of the academics at the main School of Pharmacy (MUHAS) will retire within the next five years with few young academics in the pipeline.

Table 5. Pharmaceutical human resource training applications and enrolments

| Applicants and enrolments | Year | | |
|--------------------------------------|----------|----------|-----------|
| | 2007 | 2008 | 2009 |
| BPharm applicants | 247 | 306 | 517 |
| BPharm enrolment | 47 (19%) | 80 (26%) | 110 (21%) |
| Masters applicants | 1 | 4 | 6 |
| Masters enrolment | 1 (100%) | 1 (25%) | 2 (33%) |
| Pharmaceutical technician applicants | 612 | 620 | 806 |
| Pharmaceutical technician enrolment | 52 (9%) | 62 (10%) | 64 (8%) |
| Pharmaceutical assistant applicants | 35 | 46 | 57 |
| Pharmaceutical assistant enrolment | 22 (63%) | 23 (50%) | 31 (54%) |

Clear job descriptions for pharmaceutical cadres did not exist in most of the facilities surveyed (77% - 83%). The absence of job descriptions may lead to poor understanding of the appropriate scope of practice, poor accountability and confusion in responsibilities and functions of various categories of pharmacy cadres. In such situations, it is apparent that cadres may be assigned to perform duties which are more appropriately fulfilled by lower or higher cadres.

Table 6. Percentage of facilities without job descriptions

| Cadre | Facilities without job descriptions (%) |
|----------------------------|--|
| Pharmacists | 77 |
| Pharmaceutical technicians | 81 |
| Pharmaceutical assistants | 83 |

The findings of the 2009 Assessment of Pharmaceutical Human Resources provided an evidence base with which to develop a strategy with key stakeholders which could be integrated into broader human resources for health. It is against this background of significant pharmaceutical human resources shortages, inequitable distribution, skill mix imbalances and limited training capacity that the Pharmaceutical Human Resources Strategic Framework was developed.

2. Summary of Proceedings

The consultation was held over two and a half days from 15 – 17 March in Dar es Salaam, Tanzania at the Dar es Salaam International Conference Centre. The consultation was convened by the MOHSW with the financial support of the European Commission and the technical and financial support of the World Health Organization (WHO). This interactive consultation brought together forty participants representing stakeholders such as MOHSW, regulatory bodies, professional bodies, training institutions, development partners, manufacturers, employers, pharmacists, technicians and assistants. This section provides a summary of the consultation and stakeholder inputs which lead to the formulation of the strategic framework as described in Figure 1. Participants were split into small groups of 6-8 and guided by a facilitator to develop the strategic framework through six stages (highlighted in blue in Figure 1).

Aim: To develop consensus on a strategic pharmaceutical human resources development framework

Objectives:

1. To build consensus on the key pharmaceutical human resources issues and priorities
2. To identify policy goals and processes to form the basis of a strategic development framework for the MOHSW

Figure 1. Consultation process



Chairs:

- 1 Mr Joseph Muhume, Assistant Director, Pharmaceutical Services Unit, MOHSW
2. Mrs Mildred Kinyawa, Registrar, Pharmacy Council, MOHSW
3. Mr Hiiti Sillo, Acting Director General, Tanzania Food and Drug Administration, MOHSW

Facilitators:

- Mrs Mildred Kinyawa, Registrar, Pharmacy Council, MOHSW
- Dr Omary Minzi, Senior Lecturer, Muhumbili University of Health and Allied Sciences (MUHAS)
- Ms Rose Shija, National Professional Officer, Essential Drugs and Medicines Policy, WHO Tanzania
- Mrs Helen Tata, Technical Officer, Essential Medicines and Pharmaceutical Policies, WHO Headquarters
- Ms Tana Wuliji, WHO Consultant

2.1 Day 1

2.1.1 Opening and plenary

The Chairperson, Mr Joseph Muhume, Assistant Director of Pharmaceutical Services welcomed participants to the first consultation to be held on pharmaceutical human resources in Tanzania. He acknowledged the support of the World Health Organization for the pharmaceutical human resources assessment and consultation and introduced the facilitator, Mrs Mildred Kinyawa, Registrar, Pharmacy Council.

Dr Rufaro Chatora, WHO Representative for Tanzania, emphasised the significance of the human resources for health crisis and scaling up access to essential medicines, particularly in sub-Saharan Africa and described the linkages between health workforce density and the attainment of high levels of coverage with essential health interventions. Dr Chatora stated that the availability of trained pharmaceutical personnel was of critical importance in meeting national health goals and thus required special attention. Dr Chatora applauded the MOHSW on its assessment of the pharmaceutical human resources situation in 2009 and in taking the initiative to organise the consultation.

Participants were urged by Dr Deo Mtasiwa, Chief Medical Officer MOHSW in his opening speech to consider the pharmaceutical service and science needs of the country over the course of the consultation and identify innovative strategies through which to tackle the important issue of pharmaceutical human resources development. Dr Mtasiwa outlined a vision for pharmaceutical sector development whereby pharmaceutical human resources including pharmacists, technicians and assistants were strengthened to serve the health needs of the country as well as stimulate medicines research and development. Dr Mtasiwa underlined the commitment of the MOHSW to adopt the recommendations arising from the consultation and utilise the strategic framework to not only develop pharmaceutical human resources but also further stimulate existing efforts to address the human resources for health crisis.

Ms Rose Shija, National Program Officer, WHO Tanzania, further welcomed participants and offered her support to participants in achieving the objectives of the consultation. Mrs Helen Tata, Technical Officer, Essential Medicines Programme, WHO Headquarters; provided an overview of the aim, objectives and approach of the workshop. Ms Tana Wuliji, WHO consultant, described the consultation process, the global pharmaceutical human resources situation and strategies which could be employed to strengthen human resources.

The findings of the 2009 Assessment of Pharmaceutical Human Resources were presented by Dr Omary Minzi, Senior Lecturer, School of Pharmacy, Muhimbili University of Health and Allied Sciences. Dr Minzi described the methodology of the study and highlighted the key pharmaceutical issues such as shortages, inequitable distribution, and inadequate training capacity. A copy of the report was circulated to all participants.

Figure 2. Participants of the 2010 Pharmaceutical Human Resources Consultation



Front row sitting (left to right): Dr Ambrose Haule, President PST; Dr Chambuso, Dean, SOP MUHAS; Dr Deo Mtasiwa, CMO, MOHSW; Dr Chatora, WR, WHO; Mr Muhume, Assistant Director Pharmaceutical Services; Mrs Helen Tata, WHO HQ; Mrs Kinyawa, Registrar PC

2.1.2 Consultation theme 1: Key pharmaceutical human resource issues

Discussion agenda:

- 1 To discuss key findings of the Assessment of Pharmaceutical Human Resources in Tanzania Report
2. To identify key pharmaceutical human resource issues in Tanzania

Working groups reflected on the findings of the Assessment and provided the following feedback on methodology, data collected and conclusions:

- More detailed data on the pharmaceutical human resource shortage was required with specific staffing, establishment and vacancy data for each level of care
- Future studies are required to quantify the impact of the lack of trained pharmaceutical human resources on pharmaceutical service delivery
- Data should be gathered on ADDOs and the other drug outlets (duka la dawa baridi)
- The number of pharmacies without full time pharmacists should be included in future assessments

- A study on the workload of pharmaceutical cadres should be conducted to provide a basis for estimating human resource requirements
- Data on the number of Tanzanian pharmacy students training as pharmacists abroad should be collected
- Data on the number of foreign pharmacists in Tanzania should be gathered

The working groups identified the following pharmaceutical human resource issues in Tanzania:

- Need to improve human resource management at all levels including recruitment, retention, motivation, promotion, career development
- Inadequate work environment in some facilities which may serve as a barrier to effective performance, recruitment and retention
- Uncertainty as to which groups were responsible for job descriptions. Concern that the lack of job descriptions and understanding of the scope of practice of each cadre was confusion between cadres.
- Inadequate number of pharmaceutical human resources with respect to national needs
- Unquantified demand for pharmaceutical human resources at each level
- Inequitable distribution of pharmaceutical human resources (rural vs urban, private vs public)
- Inadequate training institutions (need capacity increase, build existing institutions offering diplomas, limited enrolment capacity, academic capacity, physical limitation)
- Skill mix imbalances (more pharmacists than technicians, more technicians than assistants)
- Lack of retention scheme
- Uncertainty of quality of pharmaceutical services provided in facilities and their performance against practice standards
- Criteria for recruitment of academic staff remains a barrier to academic capacity development
- Salaries for pharmaceutical cadres in the private sector are unattractive compared to the public sector which has exacerbated shortages in the private sector
- Lack of CPD programs and low participation of pharmaceutical personnel in CPD

2.1.3 Consultation theme 2:

Pharmaceutical human resources goals

Discussion agenda:

1. To prioritise pharmaceutical human resource issues
2. To identify policy goals for each pharmaceutical human resource issue

Each working group was assigned three pharmaceutical human resource issue for which to develop policy goals. Table 7 summarises the policy goals under the categories of human resources planning, management and development.

Table 7. Human resource issues and policy goals

| HR Planning | | Policy goals |
|---------------|---------------------------|---|
| 1 | Human resource planning | <p>1.1 To strengthen partnerships between the Pharmaceutical Society of Tanzania, Pharmacy Council, Pharmaceutical Services Unit and Human Resources for Health Department to coordinate pharmaceutical human resources planning</p> <p>1.2 To formulate and implement a pharmaceutical human resources plan with the input of all stakeholders</p> <p>1.3 To review and revise the pharmaceutical human resource establishment in the public sector that reflect needs at different levels</p> <p>1.4 To strengthen the Pharmacy Council registers to ensure accurate and up to date human resource information of all pharmaceutical cadres</p> |
| 2 | Job descriptions | 2.1 To develop clear job descriptions for each pharmaceutical cadre in the public sector |
| HR Management | | Policy goals |
| 3 | Recruitment and retention | <p>3.1 To improve human resource management at district levels</p> <p>3.2 To develop and establish retention schemes for underserved areas (eg - top-up allowances, training opportunities, accelerated promotions, training opportunities)</p> <p>3.3 To improve the physical working environment in underserved areas</p> <p>3.4 To implement remote supervisory support systems for pharmaceutical services in the public sector</p> <p>3.5 To revise and improve retirement benefits</p> <p>3.6 To review the salary structure of all pharmaceutical cadres</p> |

| HR Development | | Policy goals |
|----------------|--|--|
| 4 | Training institution and academic capacity | <p>4.1 To establish new training programs, particularly for pharmaceutical technicians and assistants</p> <p>4.2 To build the teaching and physical capacity of existing training institutions (public and private)</p> <p>4.3 To review academic staff recruitment criteria to allow recognition of professional performance, expertise and experience</p> <p>4.4 To develop training programs for teachers in teaching methods</p> <p>4.5 To revise incentive packages for academic members</p> <p>4.6 To expand post-graduate (Masters, PhD) education programs to build expertise for academia (teaching and research)</p> <p>4.7 Increase output of graduates to reach target of 950 pharmacists, 1450 pharmaceutical technicians, 1500 - 2600 pharmaceutical assistants by 2015</p> <p>4.8 Review competency requirements and curriculum of each cadre to optimise length of training without compromising quality</p> |
| 5 | Continuing professional development | <p>5.1 To develop and certify CPD programs for all pharmaceutical cadres through a partnership between the Pharmacy Council, Pharmaceutical Society of Tanzania and training institutions</p> |

A prioritisation exercise identified the following as the three most important issues:

1. Inadequate training institutions and capacity for all cadres
2. Lack of retention schemes (especially for underserved areas)
3. Salaries

The consultation concluded with plenary discussions on each consultation theme before reaching consensus on the policy goals.

2.2 Day 2

The consultation resumed with the rapporteur report for day 1 and was followed by small group discussions and a presentation in the afternoon by Mr Dennis Busuguli, Department of Human Resources, MOHSW who described the work of the MOHSW in establishing a Taskforce to scale up training of lower pharmaceutical cadres and improve retention in rural areas. The Taskforce sought to determine the capacity of existing training institutions to provide pharmaceutical training programs, explore the possibility and willingness of health facilities to support training institutions in practice and fieldwork, and assess the situation of pharmaceutical human resources in health facilities. The MOHSW has conducted a rapid assessment of existing training institutions and has identified potential sites at which new training programs could be established. The Taskforce's report is forthcoming.

Three consultation themes were covered on day 2 which comprised the remaining elements of the strategic framework. The day concluded with a final consensus building discussion where policy objectives and processes were reviewed, refined and voted on until these elements were unanimously agreed upon.

2.2.1 Consultation theme 3:

Structures and processes required to achieve goals

Discussion agenda:

1. To identify structures required to achieve policy goals
2. To identify short term and long term processes required to achieve goals

Working groups were allocated specific themes to identify specific structures (eg - institutions, councils, professional bodies, working groups, agencies, etc) and processes in the short and long term (eg – decisions, consultations, activities, strategies, systems etc). These were further developed through plenary discussions and integrated into the draft framework.

Figure 3. Working group



2.2.2 Consultation theme 4:

Opportunities for and barriers to pharmaceutical human resources development

Discussion agenda:

1. To identify opportunities in the short term for pharmaceutical human resources development
2. To identify major barriers to pharmaceutical human resources development in the short term

Working groups brainstormed and reported on opportunities for and barriers to human resources development. These were incorporated into the draft strategic framework and refined through plenary discussions and consensus building.

2.2.4 Consultation theme 5: Key stakeholders and their roles

Discussion agenda:

1. To identify key stakeholders for pharmaceutical human resources development
2. To identify the potential roles of key stakeholders

Key stakeholders for human resources planning, management and development were identified and their roles defined by working groups. These formed the stakeholder framework.

2.3 Day 3

The Rapporteur's report for Day 2 was presented by Ms Siana Mapunjo, PSU, MOHSW. The draft strategic framework including the policy objectives, structures and processes were presented to the participants. A prioritisation exercise was conducted to identify priority actions which should be undertaken initially within the framework. The two key priorities were:

1. Scale up of pharmaceutical technician and assistant training to increase outputs and meet significant demands and improve pharmaceutical human resources skill mix
2. Develop and implement recruitment retention schemes in underserved areas to address distribution imbalances

Consensus on the strategic framework and stakeholders framework was achieved. Participants individually stated their commitment to undertake specific follow up action following the consultation.

The consultation was closed on by the MOHSW. Closing remarks were given by Mrs Kinyawa, Registrar, Pharmacy Council and Mrs Tata, WHO Headquarters.

Figure 4. Prioritisation exercise



2.3.1 Consultation theme 6:

Feedback on framework and identification of next steps

Discussion agenda:

1. To provide initial feedback on the draft strategic framework
2. To identify next steps for pharmaceutical human resources development

The working groups focused on providing detailed feedback on the draft framework before reporting to all participants. Groups felt that the draft framework was comprehensive and captured the inputs which had been developed over the course of the consultation.

The following next steps were recommended:

- Finalise the draft strategic framework through circulation and review by mid-April 2010
- Present the consultation report and strategic framework to CMO and management team of MOHSW and other key stakeholders, particularly the Director, HRD, MOHSW and Assistant Directors by May 2010.
- Hold stakeholder meetings to disseminate the framework at zonal level by June 2010.
- Adoption of the Strategic Framework by MOHSW by June 2010
- Formulate small taskforce to present stakeholder recommendations in different platforms and follow up implementation (eg – PSU, PST. PC)
- Develop a pharmaceutical human resources strategic plan to implement the strategic framework by July 2010
- Incorporate the pharmaceutical human resources plan into the Human Resources for Health Strategic Plan 2008 - 2013
- Collaborate with MOHSW and Development Partners to mobilize funds to implement the strategic framework

3. Pharmaceutical Human Resources Strategic Framework 2011 - 2020

The significant shortage of pharmaceutical human resources, together with workforce distribution imbalances (rural/urban, public/private) and skill mix imbalances (1.5 pharmacists: 1.25 technicians: 1 assistant) are the key issues in Tanzania which need to be resolved. These core issues are cross cutting and should be considered in all aspects of the strategic development framework (Fig 4). Figure 5 illustrates the interrelated nature of human resources planning, management and development. Policy approaches within these three components should be integrated in order to achieve improvements in the pharmaceutical human resource situation by 2015.

Figure 5. Conceptual framework



Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barriers |
|--|------------------------|--|---|
| HUMAN RESOURCES PLANNING | | | |
| 1.1 To review and revise the pharmaceutical human resource establishment in the public sector that reflect needs at different levels | HRD, PSU, PC, PMORALG, | <p>Short term:</p> <p>1.1.1 To review current need of pharmaceutical professionals at all levels</p> <p>1.1.2 Disseminate pharmaceutical human resource establishment requirements to recruitment authorities at national, regional and district levels</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existing policy initiatives (eg – updated MOHSW Establishment) Availability of data on pharmaceutical human resources from 2009 assessment to inform review <p>Barriers:</p> <ul style="list-style-type: none"> Omission of Pharmaceutical Assistant posts at dispensary level Lack of recognition of pharmaceutical human resources as a priority |
| 1.2 To strengthen partnerships to coordinate pharmaceutical human resources planning | HRD, PC, PSU, PST | <p>Short term:</p> <p>1.1.3 Strengthen partnership between the PST, PC, PSU and HRD</p> <p>1.1.4 Develop and define clear roles and responsibilities of each body in relation to pharmaceutical human resources development</p> <p>Long term:</p> <p>1.1.5 Establish a Directorate of Pharmaceutical Services under MOHSW to be responsible for the pharmaceutical sector and its human resources</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existence of necessary structures to oversee pharmaceutical human resources <p>Barriers:</p> <ul style="list-style-type: none"> Lack of Directorate to oversee pharmaceutical services and human resources Lack of recognition of pharmaceutical human resources as a priority |
| 1.3 To formulate and implement a pharmaceutical human resources plan with the input of all stakeholders | PST, PC, PSU, HRD | <p>Short term:</p> <p>1.1.6 Strengthen PST, PC and PSU, HRD to support human resource planning</p> <p>1.1.7 Mobilise financial and technical support for pharmaceutical human resources planning</p> <p>1.1.8 Identify pharmaceutical human resources requirements at each level of care</p> <p>1.1.9 Develop projections that are regularly reviewed</p> <p>Long term:</p> <p>1.1.10 To review and revise the pharmaceutical human resources plan on an ongoing basis</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Availability of some data on pharmaceutical human resources from 2009 assessment Existing policy initiatives (eg – HRHSP) <p>Barriers:</p> <ul style="list-style-type: none"> Lack of recognition of pharmaceutical human resources as a priority Inadequate data on pharmaceutical human resources on a continuous basis |

Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barriers |
|--|---------------------------------|---|---|
| 1.4 To strengthen pharmaceutical human resource information systems | PC, PST, PSU, HRD, DAP, PMORALG | <p>Short term:</p> <p>1.1.11 To regularly monitor and report on the pharmaceutical human resources situation</p> <p>1.1.12 To strengthen the Pharmacy Council registers to map the sector and location of pharmaceutical cadres</p> <p>Long term:</p> <p>1.1.13 To analyse the relationship between the performance of pharmaceutical services (eg – stockouts, availability, volume of medicines dispensed) and pharmaceutical human resource indicators</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existence of database system in the Pharmacy council Existence of Human Resource Information System within MOHSW Utilisation of PST and regional pharmacist to assist in updating the database Available WHO methodology and tools for assessment of pharmaceutical human resources <p>Barriers:</p> <ul style="list-style-type: none"> Lack of data on performance of pharmaceutical services |
| HUMAN RESOURCES MANAGEMENT | | | |
| 2.1 To improve human resource management at all levels in public sector | MOHSW, PMORALG, POPSM | <p>Short term:</p> <p>2.1.1 MOHSW to actively facilitate recruitment by PMORALG pharmaceutical human resources at all levels</p> <p>2.1.2 MOHSW to advocate to all structures on importance of budgeting for pharmaceutical human resources</p> <p>2.1.3 MOHSW to include pharmaceutical human resource requirements in PHSDP (MMAM)</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Collaboration with Mkapa HIV/AIDS Foundation which is strengthening HR management at regional and district level <p>Barriers:</p> <ul style="list-style-type: none"> Lack of recognition of pharmaceutical human resources issues as a priority MOHSW financial constraints |
| 2.2 To develop clear job descriptions for each pharmaceutical cadre in the public and private sector | PC, PSU, HRD, DAP, PMORALG | <p>Short term:</p> <p>2.1.4 To develop and review the generic job descriptions to be cadre specific and job related</p> <p>2.1.5 Disseminate and monitor job descriptions</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Collaboration with Benjamin William Mkapa HIV/AIDS Foundation which have recently conducted a review of job descriptions in health sector Existence of an active Open Performance Review Appraisal System <p>Barriers:</p> <ul style="list-style-type: none"> Inadequate managerial skills for some managers and administrators to develop and implement job descriptions Inadequate awareness of human resources management staff on the roles of pharmaceutical cadres |

Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barriers |
|---|-----------------------|---|--|
| 2.2 To develop and establish recruitment and retention schemes for underserved areas (eg - top-up allowances, training opportunities, accelerated promotions, training opportunities) | MOHSW, PMORALG, POPSM | <p>Short term:</p> <p>2.1.6 Develop and establish retention scheme package, especially targeting underserved areas</p> <p>2.1.7 MOHSW to support retention scheme by employing pharmaceutical human resources, seconding staff to districts, and implementing top up allowances and P4P (Payment for Performance)</p> <p>2.1.8 Create more internship sites for pharmacists at regional and district levels</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existence of PC to lead initiative to introduce internship sites Collaboration with Mkapa HIV/AIDS Foundation <p>Barriers:</p> <ul style="list-style-type: none"> Lack of recognition of pharmaceutical human resources issues as a priority Financial constraints |
| 2.3 To improve the physical working environment in underserved areas | MOHSW, PMORALG | <p>Short term:</p> <p>2.1.9 Allocate appropriate office and storage space, furniture and working tools in the public sector in targeted facilities (including needs assessment)</p> <p>2.1.10 Implement Good Pharmacy Practice guideline requirements in all facilities to provide for adequate medicines storage, counselling and dispensing areas</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Collaboration with Mkapa HIV/AIDS Foundation <p>Barriers:</p> <ul style="list-style-type: none"> Financial constraints |
| 2.4 To implement supervisory support systems for pharmaceutical services in the public and private sector | MOHSW, PMORALG | <p>Short term:</p> <p>2.1.11 Strengthen government authorities at all levels to provide supervision</p> <p>2.1.12 To establish and strengthen cascade supervision and mentorship</p> <p>2.1.13 Develop indicators to assess supervision support</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existence of cascade supervision in the public sector (although weak) Existence of government authorities and guidelines at all levels to provide supervision Utilise technology to provide remote supervision support <p>Barriers:</p> <ul style="list-style-type: none"> Lack of structured supervisory systems within the private sector Financial and human resource constraints |

Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barriers |
|--|---------------------|---|--|
| 2.6 To revise and improve retirement benefits in parastatal organizations and private sector | MLYD | Short term: 2.6.1 Enforcement of labour laws on retirement benefit, especially in the private sector | Opportunities: <ul style="list-style-type: none"> Existence of labour laws and responsible institution for enforcement Barriers: <ul style="list-style-type: none"> Lack of recognition of pharmaceutical human resources as a priority |
| 2.7 To review the salary structure of all pharmaceutical cadres | MOHSW, POPSM, MOFEA | Short term: 2.1.15 Review the salary structures for pharmaceutical human resources in the public sector and parastatal organisations | Opportunities: <ul style="list-style-type: none"> Availability of baseline data from 2009 Assessment Barriers: <ul style="list-style-type: none"> Financial constraints Outdated criteria in developing salary structures Lack of pharmacists at decision making level on issues related to pharmaceutical cadres welfare in the MOHSW |

HUMAN RESOURCES DEVELOPMENT

| | | | |
|--|---|---|---|
| 3.1 To correct skill mix imbalances and scale up the annual output of pharmaceutical assistants from 20 to 200 and pharmaceutical technicians from 90 to 200 | Existing teaching institutions, PC, Colleges under MOHSW ,Training Department (MOHSW), PST, TAPhATA, MOEVT, Development Partners, HESLB, NACTE, TCU | Short term: 3.1.1 Revise curriculum of existing mid- and lower cadre programs to adopt a modular form with three exit points in a streamlined training program (year 1:dispenser, year 2:certificate, year3:diploma) 3.1.2 Review and harmonise the entry criteria of applicants for each cadre of training 3.1.3 Build inter-ministerial collaboration between MOEVT and MOHSW 3.1.4 Mobilise financial investment for development of physical infrastructure and programs 3.1.5 Introduce pharmaceutical training programs at existing health training institutions (as identified by MOHSW Medicines Access Steering Committee Taskforce on pharmaceutical human resources) 3.1.6 Increase advertising of the pharmaceutical assistant program to prospective students in collaboration with all stakeholders (eg – career fairs, advertisements in media) | Opportunities: <ul style="list-style-type: none"> Interest by private investors to establish new programs. Eg -St John's University to establish technician program. Identification of potential training institutions to establish new programs by Taskforce Availability of pharmacists who could serve as trainers Large labour market demand for pharmaceutical cadres Development of standard curriculum by PC and TCU Collaboration with Mkapa HIV/AIDS Foundation and MOHSW to advertise to prospective students Availability of NACTE award system which complements traditional entry systems to enrol more applicants Availability of MUHAS laboratories which are underutilised and could be used to offer evening programs Availability of facilities outside training institutions which could be used for training (eg – halls, centres etc) Existence of Public Private Partnerships secretariat in the MOHSW which could be utilised |
|--|---|---|---|

Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barries |
|--|--|---|--|
| | | <p>3.1.7 Establish a database of pharmaceutical trainers at zonal level that could provide teaching capacity</p> <p>3.1.8 Develop and implement strategies to maximise existing resources (eg – videoconferencing of lectures, concurrent practical classes, schedule repeated streams of laboratory sessions, extend training periods beyond semesters)</p> | <p>Barriers:</p> <ul style="list-style-type: none"> • Poor utilisation of programs to build teaching capacity of trainers • Financial constraints • Lack of recognition of pharmaceutical human resources issues as a priority • Lack of clear guidance for pharmaceutical human resources curriculum development • Lack of multi-stakeholder process for providing input on curriculum development and review |
| <p>3.1 To build the teaching and infrastructure capacity of existing training institutions (public and private) that train pharmacists, technicians and assistants</p> | <p>Training department in MOHSW, ZRC, NACTE, PC, training institutions, Development Partners</p> | <p>Short term:</p> <p>3.1.9 Recruit experts as teacher-practitioners to support training</p> <p>3.1.10 Increase the budget allocation of the MOHSW to pharmaceutical human resource teaching capacity scale up</p> <p>Long term:</p> <p>3.1.11 MOHSW to mobilize additional resources for pharmaceutical human resource training scale up</p> <p>3.1.12 Form collaborative partnerships with other universities (regionally and globally)</p> <p>3.1.13 Revise criteria for entry into academic career in the universities to recognise professional performance, expertise and experience</p> <p>3.1.14 To establish and implement an incentive scheme for pharmaceutical academic staff to improve recruitment and retention</p> <p>3.1.15 Develop multipurpose laboratories for training pharmaceutical and other personnel at each zonal resource centre to serve as a shared resource for training institutions (eg – Dar es Salaam, Moshi, Mbeya, Mwanza)</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> • Existence of funded collaborative partnership between MUHAS and UCSF (USA) • Collaborate with the Touch Foundation (TWIGA Initiative) which is mobilising resources from Development Partners for health workforce education scale up • Availability of baseline data from 2009 Assessment <p>Barriers:</p> <ul style="list-style-type: none"> • Limited academic capacity in existing training institutions • Low motivation level of academic staff • Lengthy and bureaucratic processes for recruitment of academic staff • Higher Education criteria for lecturers limits utilisation of experts without higher degrees • Financial constraints • Lack of recognition of pharmaceutical human resources issues as a priority |

Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barriers |
|---|---|---|---|
| 3.2 To develop and strengthen training programs for academic staff development | Training institutions, MOHSW | <p>Short term:</p> <p>3.1.16 Provide training in teaching methodology to professionals through Zonal Resource Centres to build teaching skills</p> <p>3.1.17 Training institutions to conduct needs assessment of their academic staff</p> <p>3.1.18 Training institutions to develop and implement training plans</p> <p>3.1.19 MOHSW to provide financial and technical support for teaching training of pharmaceutical academia</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existence of teacher training program in MUHAS <p>Barriers:</p> <ul style="list-style-type: none"> Lack of academic training programs in some institutions Financial constraints |
| 3.3 To expand post-graduate (Certificate, Diploma, Masters, PhD) education programs to build expertise for academia (teaching and research) | Higher training institutions, MOHSW, MOEVT, Development partners, employers, loan board | <p>Short term:</p> <p>3.1.20 Conduct needs assessment for post-graduate programs amongst all cadres</p> <p>3.1.21 Develop post-graduate programs based on needs assessment</p> <p>3.1.22 To increase MOHSW, private sector and Development Partner investment into post-graduate training</p> <p>3.1.23 To build collaboration between higher training institutions and partner universities to expand and administer post-graduate programs</p> <p>Long term:</p> <p>3.1.24 Develop and implement an incentive scheme for academics to develop and teach in post-graduate programs</p> <p>3.1.25 Establish executive programs (eg – workplace based Masters, distance education etc)</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> Existence of expertise within Tanzania which could be utilised for teaching post-graduate programs New MOHSW scheme of service which provides incentives for attainment of post-graduate qualifications <p>Barriers:</p> <ul style="list-style-type: none"> Lack of academic capacity |

Pharmaceutical Human Resources Strategic Framework 2011 - 2020

| Policy Goals | Structure | Processes | Opportunities and Barriers |
|--|--|--|--|
| <p>3.5 Review competency requirements and curriculum of each cadre to optimise length of training without compromising quality</p> | <p>MOHSW, Training institutions, NACTE, PC, PST, TAPhATA</p> | <p>Short term: 3.5.1 Review curriculum for pharmaceutical technicians and assistants to investigate the possibility of accelerating the training program to optimise program length whilst maintaining competency requirements and quality of education.</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> • Existence of competent institutions and guidelines for reviewing curriculum • Existence of competency-based curriculum (eg – St Luke’s and Kilimanjaro – technicians and assistants) • Can revise curriculum based on experience of revising clinical officer program from 3 years to 2 years • Potential for consultations on the possibility of introducing ‘dispenser’ program (1 year training or less) • Existence of curricula in place <p>Barriers:</p> <ul style="list-style-type: none"> • Financial constraints • Shortage of training institutions providing pharmaceutical training programs |
| <p>3.6 To strengthen CPD programs for all pharmaceutical cadres</p> | <p>PC, PST, Training institutions, NACTE, TCU, MOHSW, Partner Universities, Development Partners</p> | <p>Short term: 3.5.2 Conduct needs assessment in all pharmaceutical cadres to identify themes for CPD programs which could be developed 3.5.3 Form a partnership between the Pharmacy Council, Pharmaceutical Society of Tanzania and training institutions to develop CPD programs 3.5.4 Develop and certify CPD programs for all pharmaceutical cadres 3.5.5 Mobilise resources from the private and public sector and Development Partners to support implementation of CPD programs 3.5.6 Include pharmaceutical CPD development in the MOHSW CPD guidelines</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> • Existence of structures to provide CPD programs • Requirement of CPD for registration by PC • Existence of MOHSW CPD guidelines • Existence of Directorate of CPD in MUHAS • Zonal health resource centres <p>Barriers:</p> <ul style="list-style-type: none"> • Financial constraints |

Stakeholder framework

| Stakeholder | Roles in HR planning | Roles in HR management | Roles in HR development |
|-------------|---|---|---|
| PSU, MOHSW | <ul style="list-style-type: none"> Provision of policy and guidelines on pharm HR development | <ul style="list-style-type: none"> Advise on pharmaceutical cadre salary and career development structure | <ul style="list-style-type: none"> Develop in service human resource capacity |
| PC, MOHSW | <ul style="list-style-type: none"> Provision of database on pharmaceutical HR in public and private sectors | <ul style="list-style-type: none"> Regulate and register pharmaceutical cadres Regulate and register premises (from 2011) Tracking staff Promote ethical practice | <ul style="list-style-type: none"> Set and maintain standards for education Evaluating qualifications Approve curriculum for training programs Coordinate CPD |
| TFDA | | <ul style="list-style-type: none"> Regulate and register premises (until 2011) | |
| HRD, MOHSW | <ul style="list-style-type: none"> Develop manning levels Identify needs/gaps for pharmaceutical human resources Prepare policies, guidelines, laws, regulations Develop scheme of service | <ul style="list-style-type: none"> To allocate human resources according to funded vacancies and retention schemes | |
| DAP, MOHSW | <ul style="list-style-type: none"> Develop manning levels Identify needs/gaps for pharmaceutical human resources Prepare policies, guidelines, laws, regulations Enforcement of regulations and scheme of service | <ul style="list-style-type: none"> To allocate human resources according to funded vacancies and retention schemes | <ul style="list-style-type: none"> Develop human resources capacity Oversee training and mobilise resources Monitor and assess institutions |
| MOEVT | | | <ul style="list-style-type: none"> Set and maintain standards for education and approve curricula for training programs |
| PMORALG | <ul style="list-style-type: none"> Define human resource needs and mobilise resources | Recruit and allocate pharmaceutical personnel | |
| POPSM | <ul style="list-style-type: none"> Provision of policy and guidelines for pharmaceutical human resources development | Issue recruitment permit and salary structure | |

Stakeholder framework

| Stakeholder | Roles in HR planning | Roles in HR management | Roles in HR development |
|-----------------------|--|------------------------|---|
| ZHRC | <ul style="list-style-type: none"> Conduct needs assessment of staff | | <ul style="list-style-type: none"> Training and recruitment of academic personnel Introduction of retention mechanisms to attract and retain tutors |
| Training institutions | <ul style="list-style-type: none"> Conduct research on pharmaceutical human resources | N/A | <ul style="list-style-type: none"> Training and recruitment of academic personnel Introduction of retention mechanisms to attract and retain tutors (Eg – MUHAS evening classes to retain tutors) |
| NACTE | N/A | N/A | <ul style="list-style-type: none"> Establish standards for education Validate and approve curricula Provide technical assistance for curriculum development Accredit training institutions Quality assurance of institutions |
| TCU | N/A | N/A | <ul style="list-style-type: none"> Establish standards for education Validate and approve curricula Provide technical assistance for curriculum development Accredit training institutions Quality assurance of institutions |
| PST | <ul style="list-style-type: none"> Represent interests of the pharmacists in the planning process | N/A | <ul style="list-style-type: none"> Advocate to ensure professional issues are in place CPD program development |
| TAPhATA | <ul style="list-style-type: none"> Represent interests of pharmaceutical technicians and assistants in the planning process | N/A | <ul style="list-style-type: none"> Advocate to ensure professional issues are in place CPD program development |

Stakeholder framework

| Stakeholder | Roles in HR planning | Roles in HR management | Roles in HR development |
|----------------------|--|--|--|
| Health facilities | <ul style="list-style-type: none"> Needs assessment of staff according to their production capacity, mobilise resources | <ul style="list-style-type: none"> Recruitment and retention of pharmaceutical HR Ensure retention, advancement, motivation, job security, conducive working environment Institute appropriate job descriptions | <ul style="list-style-type: none"> Provide support for CPD |
| Employers | <ul style="list-style-type: none"> Provide input on human resources needs | <ul style="list-style-type: none"> Recruitment and retention of pharmaceutical HR Ensure retention, advancement, motivation, job security, conducive working environment Institute appropriate job descriptions | <ul style="list-style-type: none"> Provide support for CPD |
| Development Partners | <ul style="list-style-type: none"> Financial and technical assistance | <ul style="list-style-type: none"> Financial and technical support, salary support, recruitment for public sector | <ul style="list-style-type: none"> Financial and technical assistance |

References

- (1) World Health Organization. The world health report 2006: working together for health. 2006.
- (2) Ministry of Health and Social Welfare, United Republic of Tanzania. Human Resources for Health Strategic Plan 2008 - 2013.
- (3) Ministry of Health and Social Welfare, United Republic of Tanzania. Assessment of Pharmaceutical Human Resources in Tanzania. 2010.

ANNEX 1 PROGRAM

| TIME | MONDAY 15 MARCH | TUESDAY 16 MARCH | WEDNESDAY 17 MARCH |
|-------------|---|---|--|
| Chair | Mrs Mildred Kinyawa, Registrar, PC, MOHSW | Mr Joseph Muhume, ADPS, MOHSW | Mr Hiiti Sillo, AgDG, TFDA |
| 0830 - 0900 | Participant registration | <ul style="list-style-type: none"> • Recap of Day 1, Rapporteur (15 min) • Group work introduction, Tana Wuliji (5 min) | <ul style="list-style-type: none"> • Recap of Day 2, Rapporteur (15 min) • Key elements of the strategic framework for pharmaceutical human resources, Tana Wuliji (15 min) |
| 0900 - 1030 | <ul style="list-style-type: none"> • Introductions, Participants • Welcome, Dr Rufaro Chatora, WHO Representative for Tanzania • Opening, Dr Deo Mtasiwa, Chief Medical Officer, MOHSW | <ul style="list-style-type: none"> • Group discussion 3: Structures and processes required to achieve goals (60 min) • Group reports and plenary discussion (30 min) | <ul style="list-style-type: none"> • Group discussion introduction, Tana Wuliji (5 min) • Group discussion 6: Feedback on framework and identification of next steps (60 min) • Group reports and plenary discussion (30 min) |
| 1030 - 1100 | Coffee | Coffee | Coffee |
| 1100 - 1300 | <ul style="list-style-type: none"> • Consultation objectives, Helen Tata, EMP, WHOHQ • Consultation outline, Tana Wuliji, Consultant • Pharmaceutical human resources – key issues and recommendations, Dr O Minzi, MUHAS (15 min) • Pharmaceutical human resources development strategies, Tana Wuliji, Consultant (10 min) | <ul style="list-style-type: none"> • Group discussion introduction, Tana Wuliji (5 min) • Group discussion 4: Opportunities for and barriers to pharmaceutical human resources development (55 min) • Group reports and plenary discussion (30 min) • Consensus building (30 min) | <ul style="list-style-type: none"> • Consensus building on strategic framework (30min) • Conclusions (15 min) • Recap of Day 3, Rapporteur (15 min) • Closing remarks, Mrs Kinyawa, PC; Mrs Helen Tata, WHO |
| 1300 - 1400 | Lunch | Lunch | |
| 1400 - 1530 | <ul style="list-style-type: none"> • Group discussion introduction, Tana Wuliji (5 min) • Group discussion 1: Key pharmaceutical human resource issues (60 min) • Group reports and plenary discussion (30 min) | <ul style="list-style-type: none"> • Strengthening pharmaceutical human resources in Tanzania: Mr Dennis Busuguli, HRD • Group discussion introduction, Tana Wuliji (5min) • Group discussion 5: Key stakeholders and their roles (55 min) | |
| 1530 - 1600 | Coffee | Coffee | |
| 1600 - 1730 | <ul style="list-style-type: none"> • Group discussion introduction, Tana Wuliji (5 min) • Group discussion 2: Priority pharmaceutical human resource goals (55 min) • Group reports and plenary discussion (30min) | <ul style="list-style-type: none"> • Group reports and plenary discussion (30 min) • Consensus building (30min) | |

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Glossary

Medical stores: Outlets based in the community which sell a restricted set of medicines and medical products without prescription, such as ADDOs, Duka la Dawa Baridis.

Newly licensed/qualified: Individuals who have entered the labour market for the first time.

Performance management: Process of optimizing productivity and quality of work of the workforce.

Pharmaceutical manufacturer: Establishments primarily engaged in one or more of the following:

- (1) manufacturing biological and medicinal products;
- (2) processing (i.e., grading, grinding, and milling) botanical drugs and herbs;
- (3) isolating active medicinal principals from botanical drugs and herbs; and
- (4) manufacturing pharmaceutical products intended for internal and external consumption in such forms as ampoules, tablets, capsules, vials, ointments, powders, solutions, and suspensions.

Pharmaceutical services: All service rendered by pharmaceutical staff to support the provision of pharmaceutical care. Beyond the supply of pharmaceutical products, pharmaceutical services include information, education, and communication to promote public health, the provision of medicines information and counselling, regulatory services, education and training of staff.

Pharmaceutical technicians and assistants: Pharmaceutical technicians and assistants perform a variety of tasks associated with dispensing medicinal products under the guidance of a pharmacist, or other health professional. Occupations grouped in this category typically require knowledge and skills obtained as the result of study in pharmacy services at a higher educational institution. Examples of national occupation titles classified here are: pharmaceutical technician, pharmaceutical technologist, pharmaceutical assistant.

Pharmaceutical wholesaler: Buys goods from a manufacturer or importer and sells it to retailers, institutional or professional users or to other wholesalers.

Pharmacists: Pharmacists store, preserve, compound, test and dispense medicinal products and counsel on the proper use and adverse effects of drugs and medicines following prescriptions issued by medical doctors and other health professionals. They also do researching, preparing, prescribing and monitoring medicinal therapies for optimizing human health. Occupations included in this category normally require completion of university-level training in theoretical and practical pharmacy, pharmaceutical chemistry or a related field. Examples of national occupation titles classified here are: hospital pharmacist, industrial pharmacist, retail pharmacist.

Pharmacy education provider: Higher education institutions responsible for delivering pre-service education and training for pharmaceutical cadres. May also administer post-graduate programs and continuing education.

Private health facilities: Including hospitals and clinics.

Private retail pharmacies: Privately owned pharmacies that provide pharmaceutical services including dispensing, advising on and sales of prescription and non-prescription medicines and medical products.

Salary structure: Hierarchy of job types and grades and the associated compensation and benefits.

Scope of practice: the range of professional tasks and functions that a practitioner can perform as specified by legislation, rules, or regulations; the boundaries within which a practitioner may practice.

Stakeholder: Any individual, group, or organization that has an interest or involvement in a particular activity, set of activities or outcome.

Workforce supply: The entry of new workforce into the labour market.

Published by



Ministry of Health and Social Welfare

Dar es Salaam, Tanzania