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CHAPTER 1: STATUS OF IMPLEMENTATION OF PRIMARY HEALTH SERVICES PROGRAMME

Background

The common focus shared by both the Primary Health Care (PHC) approach in implementing health programmes and the National Strategy on Growth and Poverty Reduction, popularly known by its Kiswahili acronym, *MKUKUTA* in Tanzania centres on three key issues identified as: (i) an emphasis on improvement of quality of life and social well-being; (ii) good governance and accountability through informed community participation and; (iii) an emphasis on multi-sectoral linkages and synergies. Under such a framework, both the goals of PHC programmes in particular, and those of *MKUKUTA* in general are thought to be realized when cross-cutting issues are mainstreamed and dealt together. In Tanzania, series of Poverty and Human Development Reports (popularly known by its Kiswahili acronym, *MMAM*) have provided information about the progress and obstacles towards the targets of poverty reduction. In Tanzania, increasing investment in priority sectors such as health and education has thus consistently featured in these reports as one of the optimal strategies towards reaching the country's *MKUKUTA* targets in line with the MDGs. There is little data on monitoring the success and or failures of the PHC programme in Tanzania in relation to both achieving the national health policy goals and its expected contribution to poverty alleviation strategies.

This section presents and discusses the historical development of PHC both perceived as a 'level' of care and as an 'approach' to planning and delivery of health care services in Tanzania. This is followed by a critical evaluation of the contribution of PHC in the country's efforts to meet the health related Millennium Development Goals (MDGs) in particular, and poverty alleviation strategies in general. In light of the perceived role of PHC towards poverty reduction, an overview of the implementation status of the *MMAM* is presented in relation to the essential health systems' inputs needed to realize the health sector-related *MKUKUTA* targets. Health personnel, finances and infrastructure, good organizational and management practices are crucial inputs needed to achieve the goals of the existing PHC programmes that are implemented in the overall framework of the country health policy.

Thus, in order to conclude on whether the implementation of PHC programmes are a success or failure, it is worthwhile to understand whether the required resources are adequately available, appropriately deployed and are sustainable. In addition, an understanding of whether these resources are equitably distributed and that the implementation process is effected within the framework of an optimal organization structure with good management practices, is equally important. Noted, is the goal of PHC programmes on improving access (coverage) to health services among Tanzanians and contribute to their efforts towards a decent life without poverty. Except for discussion of equity in PHC financing which has been dealt in other sections of this report, all the above raised issues are discussed in detail in this part.

2.0: Primary health Care concept in Tanzania: historical overview, conceptualization and implications for implementation

Primary health care as a concept and a tool for planning started to enjoy an elevated emphasis after the declaration of Alma-Ata in 1978. Before 1978, countries in the world including Tanzania had already started to implement different forms of PHC. As a concept, PHC was defined as “essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of development in the spirit of self-reliance and self-determination” (http://www.who.int/hpr/NPH/docs/declaration_almaata.pdf). There are common experiences in many countries, including Tanzania, regarding the conceptualization and design of the PHC programmes. More often than not, PHC has been conceived as ‘level’ of care than a tool for health planning towards improving people’s quality of life. With the onset of the implementation of health sector reforms and particularly decentralization reforms in the health sector, PCH has metamorphosed to becoming a tool of health sector planning. In this framework, PHC is a tool to foster community participation in health planning, increase transparency and accountability in the management of health affairs by and for the people whose needs for health care are greatest. It should however be noted that, none of the objectives of decentralization reforms was to create a new form of inequity by sidelining the better off in terms of their health care access and utilization relative to need. Nevertheless, from early to mid-1990s, the implementation of many PHC programmes have moved away from being comprehensive as recommended in the Alma Ata Declaration to becoming selective. This has been championed by The UNICEF and World Bank based largely on cost effectiveness evidence and ignoring the basic principles of PHC which emphasized comprehensiveness, responsiveness and multi-sectoral collaboration. Most of the programmes that emerged after this period were, vertical-disease specific and the definition of health presented by the World Health Organisation was by default (if not by design) narrowed to emphasize more on curative biomedical models of care than the participatory approaches towards prevention of diseases and health promotion.

The original version of PHC as announced in the Alma-Ata conference in 1978 strongly emphasised that all PHC health programmes should be implemented ‘comprehensively’ to reflect the notion that, the pursuit of achieving good health is not just a fight against diseases but a coordination of efforts and resources from different players in order to improve the overall social wellbeing. From mid 1990s, the PHC approach as embraced by the ‘comprehensiveness’ proponents was soon described as too broad and unrealistic.’ It was thought that the broad-based approach to diseases and public health problems was not the optimal way to reach the goal of health for all. Following this, selective primary health care was introduced as the name for a new approach towards planning and implementing PHC programmes. The focus of selective PHC was on packaging low-cost technical interventions that were appropriate to tackle the main disease problems of poor countries. Championed by the UNICEF and the 1993 World Bank following the 1993 famous report *Investing in Health*, the design and implementation of primary health care interventions by emphasizing on specific diseases and health programmes that were proven to be cost-effective. This approach had by default, downplayed the equity concerns which were at the core of comprehensive primary health care programmes as stipulated. The four best interventions based on Cost-effectiveness evidence were advocated throughout the developing world. They were: growth monitoring, oral rehydration techniques, breastfeeding, and immunization, famously abbreviated as GOBI.

The four interventions were seen to be easy to monitor and evaluate, in addition to being measurable as they were said to have 'clear targets'. Funding appeared easier to obtain because indicators of success and reporting could be produced more rapidly. In the next few years, some agencies added FFF (food supplementation, female literacy, and family planning) to the acronym GOBI, creating GOBI-FFF.

In Tanzania, the home grown version of the PHC was largely shaped by the post-independence nationalistic policies that from the very beginning identified three enemies of development namely ignorance, diseases and poverty (REF). The year 1967 was very momentous especially following the pronouncements that formed the cores of the Arusha Declaration. Thereafter the PHC programmes were implemented as a response to this policy framework. The strategy was perceived as an engine to fight poverty and bring an inclusive development for all Tanzanians. To increase coverage of health services equally to all who are in need, the country committed itself to a policy of providing free health care services at the point of use. However, by the late 1970s and early 1980s Tanzania experienced deepening economic and social crises, with profound implications for financing and delivery of social services (Kumaranayake et al., 2000; Munishi, 1994). In addition, the World Bank's structural adjustment conditionalities had in 1985-1986 pressured Tanzania to embark on a radical policy shift towards implementing economic and civil service reforms with a strong emphasis on 'efficiency' in the management and delivery of social services. The immediate consequences of these reforms were among others, substantially cutting down government spending on social services (including health) and down-sizing or euphemistically, 'right-sizing' the public service bureaucracy (Munishi, 1994). Following this, resources for health sector had been substantially reduced with expenditure per capita falling by 46% by the end of 1980s (Kumaranayake et al, 2000). The public sector employment freeze of 1993 which was however lifted ten years later, have had serious implications for recruitment of health professionals needed to implement what the World Bank believed to be 'cost-effective' health interventions.

Thus, in order to evaluate the status of implementation of the PHC programme in Tanzania and particularly its potential contribution to poverty reduction efforts, the highlighted historical reflections are critical to the understanding of the design and implementation of PHC programmes, assess the successes, failures and the reasons attributable to these outcomes.

The relationship between the implementation of PHC programmes and Poverty alleviation strategies in Tanzania

The common focus shared by both the PHC approach in implementing health programmes and the MKUKUTA strategy in alleviating poverty in Tanzania centres on three key issues identified as : (i) an emphasis on improvement of quality of life and social well-being; (ii) good governance and accountability through informed community participation and; iii) an emphasis on multi-sectoral linkages and synergies . Under such a framework, both the goals of PHC programmes in particular, and those of MKUKUTA in general are thought to be realized when cross-cutting issues are mainstreamed and dealt together.

The relationship between health and poverty has been established in the literature and the consistent conclusion emerging from many studies is that the two relates in vicious cycles.

Acknowledging this fact, United Nations and all governments of the world have since 2000 announced that health improvement must be one of the crucial aspects in countries' efforts to realise the overall Millennium Development Goals (MDGs). In Tanzania, series of Poverty and Human Development Reports (PHDR) have provided information about the progress and obstacles towards the targets of poverty reduction in Tanzania. Increasing investment in priority sectors such as health and education has thus consistently featured in these reports as one of the optimal strategies towards reaching the country's MKUKUTA targets in line with the MDGs.

Current situation of the implementation of PHC programme in Tanzania

The Primary Health Care Programme was launched in 2007. The programme had a number of milestones that were to be reached in order to make sure that the provision of quality health services does not only improve health of the population in its own sake but also contribute to achieving the MKUKUTA goals. The outlined PHC programme priorities below are thus the indicators for assessing its implementation status, achievement and failures.

Priority I: Human resources for Health

- To address the human resources crisis by increasing output both in terms of quantity and quality. The emphasis is to have the right number of qualified, skill mix and motivated staff in right place at the right time.
- Providing attractive incentive package targeting mainly those working in underserved rural and remote areas
- Expansion of training intake, recruitment and create an enabling environment for the retaining the recruited health workers
- The overall objective is to fill the current gap of 68% of required human resources for health in the country

Priority II: Improving district Health services

- Construction of 3088 dispensaries, 19 district hospitals, 95 maternity waiting homes and 2,074 health centres
- Rehabilitation of 250 dispensaries, 120 health centres and 54 district hospitals
- Improve maternal health by increasing the number and; improve capacity of Emergency Obstetric care (Emoc) facilities
- Construction, upgrading and rehabilitation of 128 training institutions
- Improving/ strengthening communication and referral system for 144 councils in Tanzania

Priority III: Maternal and U-5 mortality

- Reduce maternal mortality from the current 578 to 175 per 100,000 live births (by the year 2017)
- Reduce Under-5 mortality from 112 to 45 per 1000 live births (by the year 2017)
- Increasing births attended by skilled professionals from the current 46% to 88% by the years 2017

Priority IV: Malaria

- Reduce the burden of Malaria by 80% by the end of the programme period through sensitization of community members on malaria prevention and control measures at all levels; promoting the use of ITNs and introduction of indoor residual spraying

Priority V: HIV and AIDS

- Increase and strengthen services on care and treatment of people living with HIV and AIDS
- Increase access of services for the Prevention of Mother to Child Transmission (PMTCT) in all health facilities
- Provision of voluntary counselling, home based care services and increase the number of HIV and AIDS patients on ARVs from the current level of 70,000 to 800,000

Priority VI: Tuberculosis and leprosy control

- Reduce prevalence and death rates associated with tuberculosis by 50% by the end of 2017
- Elimination of leprosy as a public health problem in the country.

Priority VII: Non-Communicable diseases

- Promotion of acceptable lifestyles and training of service providers
- Strengthen and improve environmental health and sanitation and hygiene services by formulating and enforcing environmental health by-laws in all villages.
- Strengthen health promotion and education strategies
- Empowering communities to participate in health promotion activities

Priority VIII; Nutrition

- Capacity building for nutrition intervention at district and community levels by recruitment and deployment of staff that will provide technical support and ensure coordination of nutrition programmes and create linkages with other sectors.

Priority IX: Public-Private partnerships

- To sustain and strengthen partnership between the public and the private health sectors.

Achievements: coverage of health services

Various reports and other published literature indicate that there are still geographical inequalities in access to health services in Tanzania attributed to a number of reasons, ranging from inadequate, demotivated and unevenly distributed human resources; inadequate funding and unavailability of other essential inputs such as equipment and poor state of health facilities. In the last few years, there have been notable efforts by the government to ensure that health service coverage is expanded as much as possible to reach all those who face significant access barriers. From 2004 for example, services for PMTCT have been improved and expanded throughout the country; and new protocols for malaria treatment have been implemented and evaluated. In addition, health workers have been trained in number districts to implement a range of life serving health programmes such as IMCI. Government funding has incrementally been increasing in attempts to not only meet the Abuja Declaration, but also improve health care access and utilisation among the poor and other vulnerable groups. Despite these and some notable improvements, there are still

continuing disparities in health care outcomes between the rich and the poor and between the remote and urban communities. The poor in remote areas faces difficult access barriers due to distance to referral services compounded by poor road infrastructure, formal and informal payments even in services that are supposed to be free at the point of service, to mention a few and household poverty. The decision by the ministry of health to introduce new resources allocation formula and to increase the allocation of funds for preventive services are in deed positive developments towards increasing PHC service access.

The Tanzania National Tuberculosis and Leprosy Programme is one of the most successful programme in the world. With regard to the coverage of TB related services, the recent MOH performance report indicated that the proportion of TB cases successfully treated (or cured) has risen from the national average of around 80% in 2000 and 2002 to about 82% in 2005 (MOH Performance Report). The tuberculosis notification rate per 100,000 population is estimated to be 163 per 100,000 in 2006 and has remained the same in 2008 (162/100,000). The percent of TB treatment success rate (which indicate the number of TB patients who successfully completed treatment as a proportion of TB cases diagnosed) improved from 84.7% in 2006 to 87.7% in 2007. The programme has surpassed the global target set at 85%. On the other hand, the proportion of leprosy case diagnosed and successfully completed treatment stand at 97.2% and 91.7%, respectively (HSPPR, 2009).

With regard to reproductive health services, among the 7.7 million women aged 15-49 years in mainland Tanzania, 36% have reported to have received modern family planning methods (in 2006) compared to 23 % in 2000. In addition 16% were up to 2006 reported as new registered users of modern family planning methods. Provision of maternal health services has also improved although the number of maternal deaths has increased over the years. It is reported that 90% of all the districts have facilities that can provide caesarean section. In addition, health workers have been trained and imparted with safe motherhood skills in at least 50% of all districts. Communication and referral services for all health problems (including maternal and child health) have also improved. For example up to the time of writing the Service availability Mapping Report , 80% of districts have reported to have a working land line telephone which facilitate communication and referrals. The co-existence of higher coverage and improvement of (some) maternal health services with the increased pregnancy related deaths might partly be explained by factors related to access barriers and inability of many poor women to break these barriers in times of need for maternal health care services. In line with this, the recent TDHS indicate that proportion of births taking place at a health facility (with skilled assistance) is 47% (with 81% in urban and 39% in rural) way too for both the MKUKUTA and MDGs targets.

The national figure for maternal mortality ratio (MMR) as obtained from TDHS (2004/2005) is 578 maternal deaths per 100,000 live births. Although not reliable, health facility-based data estimates the MMR to range from about 40 (Arusha) to 320 in Tabora (HSPPR, 2009). All in all indicating a much lower rate than that obtained through TDHS (2005). However, the data need to be interpreted with caution because they are facility-based and the denominators used are uncertain. Maternal deaths at health facilities have remained high. In 2008, an average of 94 deaths due to maternal complications occurred at health facilities. Dar

es Salaam region reported the highest number of maternal death occurring in health facilities (HSPPR, 2009).

Available statistics indicate that on average, 48.1% of women start antenatal care attendance before 16 weeks of gestation. However, about half of the regions are below the average figure. Tabora region has reported the least proportion (32%) of women attending ANC before age 16 year. Available statistics indicate that 98% of pregnant women attend at least one ANC visit and 64% attend ANC at least 4 times during pregnancy (TDHS, 2004/05).

According to HMIS Reproductive and Child Health data, on average 52% of the deliveries in 2008 were attended at the health facility. This is a slight improvement compared to 51% which was reported in 2007. The proportions of health facility deliveries are highest in Dar es Salaam (90%) followed by Kilimanjaro and Iringa. Regions with <50% health facility deliveries included Rukwa, Shinyanga, Manyara, Tabora, Mbeya, Mtwara, Kigoma and Kagera. Already, TDHS (2004/05) data has indicated that only 47% of the deliveries are attended at the health facility.

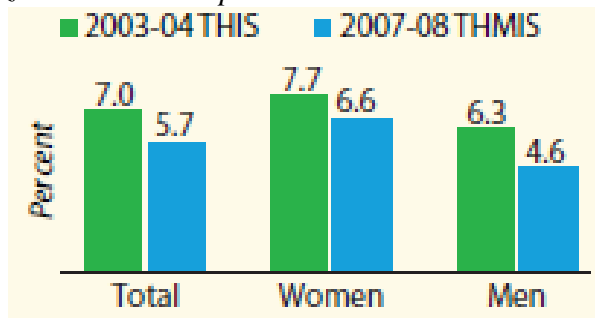
Immunization coverage has also improved over the years. Immunization is one of the proven cost-effective strategies of disease control that are the main sources of child morbidity and mortality. According to the routine EPI data, there have been some positive developments in the period spanning 2000-2004. By 2004, DTP-HB3 coverage reached a peak of 94%. However, this was followed by a steady decline to 83% in 2007. Data from EPI programme for 2008 shows a 3% increase in coverage to 86%. Accordingly, the latest recorded figure of 83% is apparently below the MKUKUTA target of 85% (MOH-Performance). However, overall, Tanzania is performing much better in immunisation coverage compared to its neighbours in the region.

Service provision for malaria prevention and control has also shown some improvements in terms of coverage. It is reported that social marketing programmes have penetrated in virtually all districts in mainland Tanzania and the number of households using treated bed nets have also increased. The proportion of mothers who received two doses of preventive intermittent treatment for malaria during last pregnancy is estimated at 57% (THMIS, 2007-07). The proportion of pregnant women and children <5 years, sleeping under an insecticide treated net (ITN) is 27% and 26%, respectively.

For HIV/AIDS service provision coverage, the available data indicate that by the year 2006 Anti Retroviral Treatment (ART) services were reported to be available in 65% of districts which had at least one health facility capable of offering these services- 25% of districts reported to have two or more ART facilities. By the end of 2007, a total of 80,628 persons with advanced HIV infection were receiving ARV combination treatment. By the end of May 2009, a total of 248,280 persons were receiving ARVs, which is a significant increase of 32%. In addition, PMTCT services are available in 84% of all districts while HIV/AIDS counselling and testing is now more widely available. For example two-thirds of the districts in mainland Tanzania are reported to have at least four service delivery points for counselling and HIV testing. About 34% of the HIV positive women were receiving ARVs to prevent

mother to child transmission in 2007 (NACP, 2007). The proportion has increased to 55% by the end of 2008.

Figure 1: Tanzania HIV/AIDS prevalence trends



Source: Tanzania HIV/AIDS Indicator Survey, 2008

Non-communicable diseases were also among the milestones that the primary health care development programme planned to address. The burden of non communicable diseases (diabetes, cardiovascular diseases, cancers, nutritional disorders etc.) is reported to be rapidly increasing in Tanzania at the time when the health sector is ill-prepared. The aim of the programme was to increase awareness on the prevention and control through health promotion interventions and improvement of treatment at the facilities. Access to information about the seriousness of the disease (in terms of their associated morbidity and mortality) is likely to have not reached the majority of populations in Tanzania due to capacity weaknesses inherent in health education and promotion interventions. In addition, mortality associated with these diseases will likely to be enormous in the near future due to the fact treatment capacities are weak due to inadequate resources (human and equipment) in most of the health facilities in the country.

PHC programme achievements in terms of health status indicators: are there any improvements towards MKUKUTA and MDGs targets?

It is reasonable to believe that improving health service quality and access may have a positive impact on health status improvement among users. Tanzania is currently facing significant challenges in meeting the 2010 health related- MKUKUTA targets in particular, and the 2015 MDGs related health targets in general. Quality of health services, both perceived and professionally determined, is an important entry point to health service utilisation and thus a precursor for positive health outcomes. The recent evaluation shows some indication of improved quality of health services in Tanzania. It is reported that ability to deal with malaria, implementation of vitamin supplementation programmes, drug supply to facilities and health workers attitudes and capacities to provide care, have improved to satisfactory levels (MOH performance report)

Below is a summary of achievement regarding some important health status indicators for the country’s health sector towards realising the MKUKUTA and MDG targets.

Morbidity and mortality due to Malaria and HIV/AIDS

The MKUKUTA target for prevention and control of Malaria is to reduce morbidity and mortality due to Malaria by 50% by the year 2010. However, there is no data indicating the level of achievement of this goal. However, there are no data to concretely ascertain the level that existing malaria interventions have achieved in reducing Malaria morbidity and mortality in line with the set targets. The available survey reports indicate that there have been recorded declines in HIV+ rates between 2003/2004 and 2007/2008. HIV/AIDS is more prevalent among women than men. (Can we have more data on HIV/AIDS HERE??

Life expectancy

With life expectancy, which is the most common indicator of the overall population health, 52 years was set as the MKUKUTA target. In the 2002 population and housing census, the average life expectancy for a Tanzanian was recorded at 51 years. The demographic impact of HIV/AIDS pandemic might threaten the efforts towards realising this goal

Child mortality

According to Masanja et al (2008), the prospects for Tanzania to reduce infant and under-5 mortality towards reaching the MDG targets looks promising. From the 1999 and 2004/2005 Tanzania Demographic and Health Surveys (TDHS), infant and under-5 mortality declined from 99 to 68 and from 147 to 112 per 1000 live births respectively (Poverty and Human Development Report). This estimates exceed the 2003 Poverty Reduction Strategy (PRS) targets and if these can be sustained, the MDGs targets might be realised. It is indicated that much of these improvements might be attributed to improved malaria control measures- through both increased use of mosquito nets and improved curative care by using more effective malaria drugs. With all these improvements there still remain huge rural-urban disparities. Rural (poor) children have higher chances of dying before the age of five and if they happen to survive, they are more likely to be malnourished. This pattern might well be explained by rural-urban socioeconomic differences whereby poverty in Tanzania is predominantly a rural phenomenon.

Maternal mortality

The data collected routinely by the Ministry of Health and Social Welfare have not been used to provide reliable estimates of the trends of maternal health status in Mainland Tanzania. The 2004/2005 has provided the latest estimates of maternal mortality ratio which stands at 578 per 100,000 live births (TDHS., 2004/05). This is about 10%¹ increase in the number of maternal deaths compared to the previous 529 per 100,000 live births recorded in a decade ago. Already, there are some efforts aimed to reverse this trend in order to meet the MKUKUTA and the MDG targets. The government has collaborated with different stakeholders and developed a strategic plan that aims to increase the number of births at health facilities to be attended by qualified health professionals. There are also concerted efforts to promote and sensitise communities on the use of health facilities during pregnancy and for delivery. Efforts are also deployed to improve the availability of Emoc services by strengthening emergency referral mechanisms and ensuring availability of health personnel. The aim of these efforts is to reduce maternal deaths to 265 per 100,000 by the year 2010 and reach the MDG target of 133 per 100,000 in 2015 (MOH Performance Report). There are currently no up to date data to monitor whether there are any indications towards achieving these ambitious goals.

¹ Based on the data and our own computation

Nutritional related health status

Nutritional status is also an important indicator for monitoring health status improvement among children. Nutritional status is normally reflected in such indicators as weight- for- height and weight –for-age. Weight for age which is measured annually describes the current nutritional status of children. Wasting which is one of the parameters of poor nutritional status, may be caused by the failure to receive adequate nutrition or repeated episodes of illnesses. The MKUKUTA target has set to reduce wasting to 2% in 2010. The 2004/2005 TDHS indicate that wasting among under-5s has decreased to 3% compared to an average of 5% to 7% recorded throughout the 1990s.

Weight- for- age is a useful clinical indicator for assessing continuous assessment of children's nutritional progress and growth. MKUKUTA has not set a specific target for reducing under weight among Under-5s and thus difficult to monitor progress (MOH-Performance report). However, it is shown in the 2004/2005 TDHS that 22% of Under-5 children are moderately under weight is 22% compared to 30% in the 1990s. It is further indicated that 3.7% of children under the age of five years are severely under weight. These data indicate a somewhat rosy pattern of improvement but more efforts needs to be employed.

Infrastructure

According to the recent service availability mapping report (MoHSW/WHO), health facilities in Tanzania mainland are concentrated in rural areas although this pattern does not correspond with the distribution of health workers. Following the ongoing implementation of health sector reforms and expansion of health services in rural areas, access to health services is believed to have been increased over the last few years with the majority of people reported to be within an average of 5 kilometres from the nearby health facility.

If we perceive PHC a 'level of care', the Tanzanian health system follows a strict pyramidal referral structure with dispensaries being at the lowest level in the pyramid. Dispensaries are designated to serve between 6,000 and 10,000 people. A health centre, the first referral point from dispensaries, serves about 50,000 people in its catchment area. Above this level are district and regional hospitals which provide more or less similar services except that there are more medical specialist at the regional hospital level than at the district level. On top of the pyramid, there are four tertiary/ specialist hospitals of which two are owned by faith based organisations and the rest are owned by the government.

The MoHSW 2005 statistical report has indicated that in mainland Tanzania there are 4679 dispensaries of which, 3038 are government owned. In addition, there are 331 government owned health centres. There are also 219 hospitals of which 89 are owned by the government. The rest of health facilities are owned by faith based organisations, private sector and parastatal organisations. Table 1 below indicates the distribution of health facilities in mainland Tanzania by sector for some selected years. A detailed distribution of facilities by region can be accessed in the Tanzania Service Availability Mapping report.

Table: Number of health facilities in mainland Tanzania, 2001-2006

Year	Public	NGO	Private	Other ²	Total
2001	3060	748	977	205	4990
2005	3456	952	809	163	5379
2006	3696	931	739	186	5552

Source: Service Availability Mapping (SAM) Report, WHO/ MoHSW Tanzania, 2007

Without considering the type of health facility, Tanzania mainland has an average of 1.5 health facilities per 10,000 people, a figure which is comparable to Namibia and Zambia in Sub-Saharan African region (REF). The Lake zone regions of Kagera, Shinyanga and Mwanza have the lowest number of health facilities per capita³.

Human resources: the current situation and its association with health status and MKUKUTA targets

Tanzania has been described to be among the countries in the world with the lowest health personnel per capita. According to World Health Report (2006), the ratio of health personnel with advanced clinical skills (medical doctors and specialists) is 0.02 per 1000 population, the lowest in the world. There is an emerging body of evidence pointing to the linear association between the availability and equitable distribution of health personnel with some important health status indicators. In addition, availability of qualified health workers who are effectively motivated and evenly distributed has recently been concluded to be one of the key inputs towards reaching Millennium Development Goals (Anand, 2004). In a multi-country econometric study, Anand and Barnighhussen (2004?) have found that areas with lower health worker density are associated with lower immunisation coverage and higher under-5 mortality. In Tanzania, a study has shown that districts which had higher numbers of under five mortality were also characterised by an even fewer health workers per capita (Munga and Mæstad, 2009). It is thus reasonable to conclude that availability and equitable distribution of health workers is a crucial health system's ingredient for ensuring a wide coverage of quality health services in particular, and health status improvement in general.

The September 2007 Joint Annual Health Sector Review has set aside milestones to be achieved in order to address the human resources for health crisis in Tanzania. In collaboration with stakeholders for health sector development, a 'special rapid recruitment initiative' was launched and was meant to address HRH shortages in remote and high HIV/AIDS prevalence districts. It was envisaged that by the end of September 2007, 176 health workers would have been recruited and posted to where they are mostly needed. However, by the 21st of September, 121 health workers had been posted and reported in 19 districts (MOH-Performance report). This rapid recruitment strategy is a commendable move towards the right direction. However, if it is to effectively address the shortage of health workers in the earmarked areas, it should be backed by effective incentive and retention strategies in order to make health workers stay longer in places where they are deployed.

² The category 'other' entails those facilities mainly owned by Parastatal organisations

³ These are also the regions with larger populations compared to other regions in Mainland Tanzania.

Another mile stone was to fill the 80% of the funded posts in the 2006/2007 financial year. In this period, the Ministry of Health and Social Welfare got an employment permit to recruit 3,890 health workers to be distributed all over the country as per submitted needs from each district council. It is reported that up to 30th of June 2007, a total of 3,699 (about 95% of total funded posts) health workers were posted to different regions and districts based on the needs submitted to the Ministry of Health and Social Welfare. A survey of 46 districts later on indicated that only 64% of the recruited health workers reported to their work destination and sooner or later, 12% of the reported health workers had left. This indicates a serious lack of effective health worker retention strategies in the country's health sector.

Although the FBOs/NGOs contribute about 40% of health service provision in Tanzania, it has over recent years experienced difficulties in attracting and retaining health workers. There has been an exodus of health workers from FBO/NGO sector to public sector due to among other things, pay rise and slight improvements in working conditions in the latter. It must be noted that, the private sector in rural areas is pre-dominated by NGO/ and Faith Based Organisations (FBOs). Thus, the tendency of health workers migrating from this sector to the public sector might potentially (negatively) affect the private sector contribution to the health of rural communities which is contrary to the expectations envisioned by the Public-private - partnership architecture.

In 2006, the Ministry estimated that a total of 82,300 skilled health professions were required compared to 29,100 who were actually available translating into a shortfall of 65%. An overall mean deficit of 39.4% of health workers has been reported by the CCHP Performance Report (2009). The cadres that are characterised by severe shortages include medical doctors, radiographers, clinical officers, nurses, and pharmacists. The status of health workers by cadre is shown below:

Table : Status of health workers by cadre in Tanzania Mainland

Cadre	Establishment	Available	Deficit	% Deficit
Specialist doctor	229	96	133	58.1
Nurse/NW/PHN	20,373	9241	11132	54.6
Radiographer	197	97	100	50.8
Clinical officer	11,316	5655	5661	50.0
Pharmacist/Technician	621	311	310	49.9
AMO/ADO	2,407	1295	1112	46.2
Health officer	1,823	990	833	45.7
Lab Technician	821	480	341	41.5
Asst/Clinical Officer/ MCHA	760	451	309	40.7
Medical Doctor	748	469	279	37.3
Nursing Officer/PHNA	6,559	4381	2178	33.2
Health Secretary	269	196	73	27.1
Medical Attendants/Others	24,154	18891	5263	21.8
Total	70,277	42553	27724	39.4

Source: CCHP Performance Report (2009)

There is still a problem of poor distribution of the available human resource. Some areas have a shortage of more than the double of the number of health workers per 10,000 population compared to others. Kagera, Shinyanga, Tabora and Kigoma are the most affected regions. In addition to regional variations, there distribution within regions and within district is also uneven. The less popular districts and the most remote health facilities are especially disadvantaged. Remote districts which have the lowest (overall) health workers per capita are also characterised by fewer skilled health workers suggesting a skill-mix maldistribution between the remote and urban areas. The inequitable distribution of human resources for health is likely to persist until a workable incentive package is operational to motivate health workers to serve in less popular districts and villages. In spite of a broad consensus and evidence that such measures are needed, there has been slow progress in designing effective interventions to address the problem.

Amidst these shortages and inequitable distribution of health workers, the crisis of human resources for health is further compounded by low motivation and productivity, higher attrition rates due to among others HI/ AIDS, and out-migration to other lucrative health care labour markets. In addition, remote poor districts are experiencing difficulties in attracting qualified health workers needed to deliver PHC interventions. However, the partial re-instatement of centralised recruitment of health workers in the context of ongoing decentralising reforms has provided a promising (hybrid) form of recruitment where by the central government plays as the facilitator while the local governments own the needs identification and planning processes. Because of these, there is some indication from published evidence that even the hard to staff areas are getting the required skilled health workers, although not to the level of meeting all the requirements (Munga et al, 2009).

Financing

Since the inception of the programme, it was envisaged that financing of the programme will cost about 15.4 billion Tanzanian Shillings catered for by such sources as government budget and off-budget sources (User fees, drug revolving fund, National Health Insurance Fund and Community Health Insurance Fund) . Contribution from the communities was set to constitute 20% of the overall budget, contributed through voluntary labour and other material inputs for construction of facilities. Data for monitoring programme financing progress and disaggregated contribution of each identified stakeholder, are provided in the section titled '*Financing Options*' of this report.

Implementation process

The implementation of the primary health care development programme is effected within the context of health sector decentralisation reforms which emphasises community ownership through participation in decision making and programme implementation. Effective implementation process is dependent upon embracing the vitals of the PHC philosophy in policy planning and implementation. Such aspects are such as community participation, inter-sectoral collaboration and good governance and accountability. This is key to ensuring that adequate resources are mobilised and effectively deployed to implement the health programmes. In addition, presence of good governance and accountability mechanisms will ensure that the created institutional structures of administration are responsive enough not only addressing the health needs of the population, but also to meeting the broad-based poverty alleviation goal.

Right from its inception, the implementation of the primary health care programme has emphasised the need to involve all stakeholders in line with the imperatives of the ongoing health sector decentralisation reforms. It was envisaged that community participation will depend on how people at the grassroots are informed and appreciate the programme. No milestones were however set to monitor how and what advocacy strategies will facilitate the achievement of this goal. This will need to be informed by future evaluation studies.

Different roles were identified, with the central government bodies been charged with the responsibility of providing policy guidance, technical assistance to and supervising local governments which are responsible for actual implementation of the programme. At the district level, the Council's Health Services Board (CHSB) is responsible for overseeing the implementation of health services at the district. The Council Health Management Teams (CHMTs), the technical arm of the board, are charged with the responsibility of running the day to day management of health service delivery within their jurisdictions. Below these levels are Ward and Village health committees which organise and mobilise community efforts towards the realisation of the programme goals at the grassroots levels. At all levels, capacity issues remain a serious challenge for all the stakeholders to fulfil their designated responsibilities.

Public-Private Partnership (PPP)

The milestones set by the programme under this aspect, was to sustain and strengthen partnership between the public and non-governmental stakeholders. The how question, and when we should expect this to be fully realised, is not clearly stated anywhere. However, the policy to revitalise the necessity to involve the private sector in health care provision and financing was already in place since 1991 when the private sector was formally allowed to be a player in the health sector activities.

In Tanzania mainland, private health facilities account for almost 40% of which 35% are owned by Faith Based Organisations (FBOs). About 90% of the private for profit facilities are concentrated in urban areas where only 20% of the country population resides. Through this initiative (i.e PPP), it was envisioned that the district health service system, the back bone of the primary health care programme, will be strengthened by involving more non-governmental stakeholders to ensure wider coverage of services. The aim is to give room to tap financial, human and institutional resources and team them up with the limited resources that are at the disposal of the public sector. Future evaluations will need to longitudinally and cross-sectionally track the actual contribution of the private sector in terms of improving access to health services in among Tanzanians. Analysis of specific private sector contribution to specific disease programmes will be quite useful in monitoring private health sector role as a partner in the health sector.

Challenges

A number of reports indicate that there are still geographical inequalities in access to health care services in Tanzania and unimpressive developments in health status indicators. Improved coverage of health service access which in turn is expected to improve overall population health status, are crucial indicators in assessing whether the implementation of PHC programmes contribute to the health related MKUKUTA and MDG targets. The following are some of the

challenges (as learnt from the literature) that hinders effective implementation of PHC interventions in Tanzania

- Human resources for health crisis, the very objective that the current PHC programme sought to address, has turned out to be the major challenge towards successful implementation of the overall objectives of the programme. Acute shortages in terms of numbers, shortages of the required skills and poor skill mix, imbalanced distribution, low motivation and poor performance, among others, have been eating the vitals of Tanzanian health systems and affected the effective implementation of the PHC programme and its possible potentials to contributing to poverty alleviation efforts.
- Economic resources constraints in Tanzania compromises its ability to adequately implement the PHC programmes in order for health sector to make any significant contribution into achieving the MKUKUTA and MDGs targets. Apparently, the most crucial constraint is an absolute shortfall of resources (human, financial and institutional). However, there are still other crucial issues regarding the equity in distribution of these resources needed to implement PHC programmes. In addition, even when financial resources are mobilised by government and donors, still there are ‘capacity problems’ at district level both in terms of managing human resources and financial resources . There is lack of effective and accountable systems of management and governance at the district and community levels. Weak institutions at lower levels not only breed low level of local people’s engagement in planning and implementation of PHC programmes but also impose communication difficulties between the local government and the central government actors.
- Poorly/ inadequately functioning referral system is still a problem although there are ongoing efforts to improve the situation. A poorly functioning referral system contributes to inequity and further marginalises the remote and poorer communities from accessing quality health services which is at the core of the PHC programme goals.
- The Public-private partnership ‘window’ for improved PHC programme implementation is partially open. That is, there is a bias in the distribution of private health facilities and practitioners towards big urban centres. In essence, the Public-Private partnership in most of rural areas is largely limited to NGOs and Faith Based Organisations (FBOs)
- There still remain important analytical gaps regarding how implementation of PHC interventions can significantly contribute to achieving the MKUKUTA and MDG goals in Tanzania.
- Effective PHC programme implementation is said to be more effective if it is comprehensive and multi-sectoral. There is, however, an indication that other sectoral ministries and local government levels have not been, for many reasons (including capacity constraints), adequately involved in the planning and implementation of many PHC interventions that are also meant to contribute towards poverty alleviation.
- Given the resources constraints and the time-pressure to meet the close deadlines (2010 for MKUKUTA and 2015 for MDGs), the contribution of PHC programmes to poverty alleviation may not be felt as strong as policy makers would wish to see. Pressure exerted by the need to meet targets has more often than not created tendency to focus much more on core PHC delivery functions without been backed by sufficient evidence linked to PHC contribution to poverty alleviation goals.

- There is too much delegations of functions to decentralised local governments. There is quite some evidence that delegating new functions to weak institutions may lead to both ineffective implementation and poor (inadequate) outcomes
- With regard to nutritional health, under-nutrition is still high despite some little progress recorded. District and community response levels and actions to address this problem are still inadequate (weak?). In addition, there are no designated nutritional focal personnel at the district and community levels, making it virtually impossible to coordinate strategies and actions.
- HIV/AIDS, multi drug resistant TB and the emergence (with vibrancy) of Non-communicable diseases due to a fast running ‘epidemiologic transition’ are crucial new challenges at the time when the health sector is not fully prepared (due to a number of capacity constraints).The emergence of multi-drug TB threatens to reverse the achievement so far achieved. There is unfortunately no clear policy for follow up of patients presenting with MDR, hence increasing the chances to further transmit the strains to the general population
- With regard to malaria, the review of the Malaria strategic plan (2002-2007) has indicated a number of weaknesses for implementing malaria interventions in mainland Tanzania
 - There are reported low percentages of malaria confirmed cases leading to over diagnosis. It is indicated more than 95% of all febrile patients receive anti-malarials, indicating a huge potential of wastage of drugs and thus, resources
 - There are virtually unclear quality control systems for the correct management of malaria at the ministry of health’s diagnostic unit.
 - There is (almost) absence of strategic actions to address integrated malaria vector control issues.
 - Serious?? Advocacy actions for malaria control (as is for other diseases) has largely and for many years centred around the national and district (council) levels. Not much has gone down to community levels.

Conclusion and the Way Forward

In spite of recent large scale efforts to implement the primary health care development programmes in Tanzania, coverage of many health interventions and thus, access to health services among the majority of poor is still a little distant goal to be realised. There are a number of health system’s capacity constraints contributing to this situation. Human resources, the scarcest resource, remain to be a critical challenge as the deployment of other resources such as finances and equipment largely depends on the availability of adequate, well trained and motivated health workforce. Government funding, which is way too far bellow the Abuja commitment, is yet another issue that needs a quick strategic response if the goal of PHC are to be realised, the MKUKUTA targets are to be met. The institutional framework under which the programme is to be implemented is still underdeveloped, regardless of huge leaps the health sector reforms have taken to institutionalise community participation and good governance. In order to reduce higher maternal mortality, emergency obstetric care and access to antenatal care and delivery need to be improved. This can be done by improving referral services especially for poor women in remote areas. Child health status has seen some significant improvements over the years, but more needs to be done. Reports indicate that diarrhoeal diseases and pneumonia kill more children in low income countries than the effects of HIV/AIDS, Malaria and Measles combined. Yet, there is no specific and clear strategy to address these diseases in the current

programme design. The inadequate multi-sectoral collaboration is yet another issue. The private sector potentials have not yet fully exploited to make the sector a meaningful contributor to the goals of improving health care access (and health status) and to realising poverty eradication targets. Strategic efforts are now, than ever before, needed to align the efforts and resources of all stakeholders towards a common goal.

CHAPTER 2: STATUS ON EQUIPMENT, VACCINES, MEDICINES AND SUPPLIES AT LOWER LEVELS OF HEALTH SERVICES DELIVERY SYSTEM

Background

The health sector has been identified as a priority area in several policy documents including the National Strategy for Growth and Reduction of Poverty (commonly referred to as MKUKUTA), the Tanzania Development Vision 2025, and the Tanzania Assistance Strategy (Kimberly Smith . 2004). In the 1990s, the Government of Tanzania embarked on a health sector reform Program, the overall objectives of which were to “improve the health and well being of all Tanzanians with a focus on those most at risk and to encourage the health system to be more responsive to the needs of the people.” The main strategies set forth to achieve this goal include: decentralization of management to districts, hospital reforms, human resource development, improved management of donor funding through a sector-wide approach (SWAP), and exploring alternative financing mechanisms for the health sector. Decentralization was the central tenant of the reform efforts.

The health sector reforms have led to significant changes in health planning and financing. Under the reform guidelines, Council Health Management Teams (CHMTs) and Council Health Services Boards are responsible for planning, supplying, and managing health services at the district level, with guidance and oversight by the Regional Health Management Team. The role of the central level has in turn been reduced to policy formulation, setting guidelines and standards, procurement and distribution, training, and monitoring and supervision.

Availability of medicines, medical supplies and equipment in health facilities is necessary for the provision of health services. It is important for the government to maintain uninterrupted supply of the items in the health facilities at all times in order to facilitate the attainment of the global Millennium Development Goals (MDGs) which are translated in the MKUKUTA. This chapter focuses on reporting the status on equipment, vaccines, medicines and supplies at this lower level of health service delivery where most of Tanzanian live and receive health care services.

Vaccines

Current Situation

Administrative set-up

The Expanded Program on Immunization (EPI) was launched by the World Health Organization (WHO) in 1974. In Tanzania EPI was introduced in 1975 with the primary aim of protecting children from Vaccine Preventable Diseases. The overall goal is to contribute in reducing infant and childhood mortality rates. This is expected to be achieved through high and effective vaccination coverage for all antigens, using quality vaccines. Under a national program manager, the EPI at the central level is responsible for policy formulation, overall strategies and guidelines, planning and budgeting, procurement and distribution, training, monitoring and evaluation. At the regional level, the program is under the Regional Medical Officer, supported by a Regional Cold Chain Officer and a Regional MCH Coordinator. At the district level, responsibility rests with the District Medical Officer assisted by the District Cold Chain Officer and the District MCH Coordinator.

Types of EPI Vaccines

It has been clear that the MOHSW has the mandate to provide safe, potent and effective vaccines for all children and women of child bearing age thus contributing to reduction in morbidity, mortality and disability due to childhood preventable diseases. There are two immunization schedules currently in use which targets children under one year of age and the women of childbearing age, that is, 15-49 years. The program currently provides immunization with BCG (for tuberculosis), OPV (for polio), DPT-HepB (whooping cough/pertussis, diphtheria and influenza), TT (tetanus), HBsAg (hepatitis B), and MMR/MMRV (Measles) vaccines for all infants, together with TT vaccine for mothers. Additional vaccines may be added to the national schedule as they become available. Schedules for vaccines currently under EPI are shown below;

Table 1: Immunization Schedule in Tanzania for under one year and child bearing age (15-49) women

Antigens	Number of doses given	Age at which given
<i>Under one year</i>		
BCG	1	At birth
OPV0	1	At birth, 4, 8 and 12 weeks
DPT-HB1, OPV1	1	At birth
DPT-HB2, OPV2	1	Eight weeks
DPT-HB3, OPV3	1	12 weeks
Measles	1	At 9 months
<i>Child bearing age (15-49 years)</i>		
TT1	1	Any time in first contact
TT2	1	One month after the 1 st visit (TT1)
TT3	1	Six months after TT2
TT4	1	One year after TT3
TT5	1	One year after TT4

Coverage

In Tanzania immunization is offered as part of Primary Health Care (PHC) in all Maternal and Child Health (MCH) clinics, in all the cases attached to a health facility under the Reproductive and Child Health Section. In 2007 Tanzania had a total of 5588 health facilities from which 4704 4,374 (84.2%) were eligible for providing immunization service. However, 4289 (76.6% of all the facilities i.e. 91.1% of the eligible facilities) health facilities were providing the services (REF). Interestingly, by 2008, there was an increase reaching a total of 4,374 health facilities providing EPI vaccines in the country of which approximately 75% are government-owned. The remaining belongs to non-governmental organizations, religious organizations and private practitioners (MoHSW, 2009). As presented in Figure 1, there has been great achievement in number of health facilities providing EPI vaccine with an increase from 4072 in 2005 to 4374 in 2008.

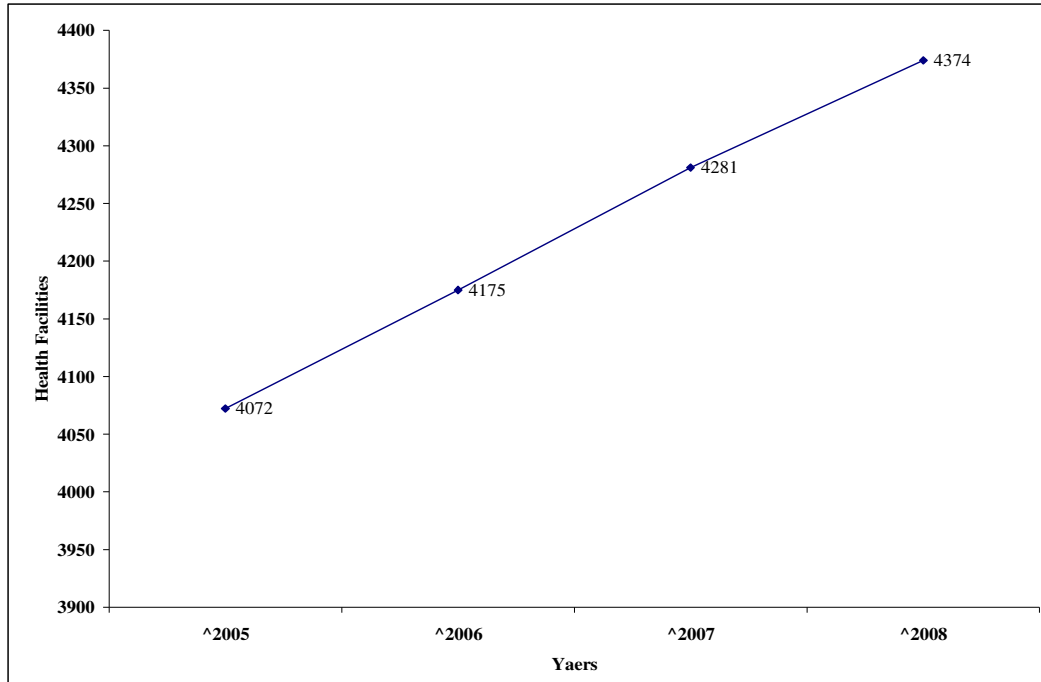


Figure 1: Number of health facilities providing EPI vaccines in Tanzania

(Source: Taarifa ya Utekelezaji ya Wizara Kuanzia Desemba 2005 hadi Machi 2009, April 2009)

EPI vaccines coverage rates is one the indicators of health sector performance which is also part of MKUKUTA and PAF indicators. According to Health Sector Performance Profile Report 2008 Update for financial year July 2007 – June 2008 (MoHSW, 2008), each antigen showed over 80% coverage. However, data shows that there has been a steady decrease in coverage of DPT-HB3 from year 2004 as shown in Figure 2.

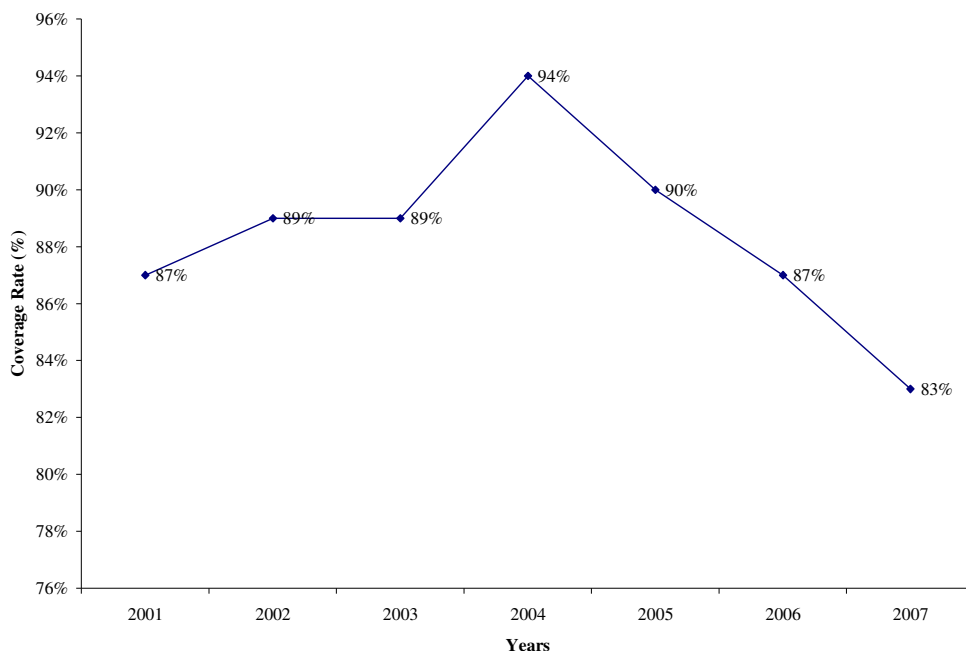


Figure 2: DPT-HB3 coverage by age 12 months

(Source: *Health Sector Performance Profile Report 2008 Update for financial year July 2007 – June 2008*)

Reasons for raise of EPI vaccines in coverage

It should be noted that from 1980 to 1996 EPI was a vertical programme and it was supported by different partners mainly DANIDA which supported EPI as a project to strengthen its managerial and financial capacity. Other partners were UNICEF, Rotary International, JICA, WHO and others. External support for EPI was stable for a number of years and greatly contributed to the stability of coverage. Hence there were sufficient resources; Vaccines, Equipment (Cold Chain), and skilled human resources. Therefore, it could be summarized that the noted increase in coverage EPI vaccines could be a result of;

- During UCI there was a multi-sectoral approach to boost Immunization.
- There was commitment from higher political, religious and other community leaders.
- This resulted in increased public awareness and reception of immunization services offered.
- Community awareness through effective social mobilization
- Political stability in the country
- High political support/commitment
- Collaboration of the MoHSW and its various partners

Reasons for decline in EPI vaccines coverage

Despite that in the early 1900s and 2000s, EPI documented up to 99% immunization coverage (MOHSW, 2000), currently the same has declined to 83% and 86% in 2007 and 2008, respectively, the program is relatively successful in its aim of providing immunization for all infants, and the national immunization coverage rates based on the entire birth cohorts each year. The reported decline is reported mainly to be a mathematical and discrepancy between population statistics issued by the National Bureau of Statistics (NBS) and the actual number of

children available in the community. While EPI records indicate to cover almost all the eligible children and pregnant mothers in the community, thus recording more children and pregnant mothers than that issued by the NBS. Also, the reported good immunization coverage was achieved when the program was running as a project which attracted a lot of funding from different partners. There has been a significant shift in funding for activities such as social mobilization/village campaigns and monitoring and evaluation activities. Due to decentralization of the Program activities and funding system at district level, much of the supportive supervision and service delivery level is done by the RHMT and CHMT members whose knowledge and skill composition does not suffice the need for EPI services at different service delivery levels.

2.1.2 Financing mechanisms of the vaccines and vaccination activities

Government reforms in Tanzania have had a significant impact on the financing of immunization activities. Two outcomes of the reform process that have had the greatest effect on immunization financing are the creation of the SWAP and the decentralization of health sector planning and financing. The SWAP has changed the way that the EPI receives much of its donor funding, as well as the overall level of funding. Many donors that used to finance the EPI directly as a vertical program now contribute unearmarked funding to the health sector as a whole through a consolidated 'basket' of donor funds. While the EPI continues to receive direct program support for specific activities, such as campaigns, or items, such as cold chain equipment, donor funding for routine EPI costs seems to be considerably more uncertain than in the past.

On the other hand, in the Poverty Reduction Strategy Paper, the Tanzania Assistance Strategy, and the Tanzania Development Vision 2025 identify the health sector and immunization specifically, as priority areas. Specific immunization or immunization-related targets are included in these strategy documents, which ensure that the EPI receives a certain level of government and basket funding to assist the Government in achieving these targets. As a reflection of its priority status, the EPI program is included as a line item in the MTEF, along with other priority areas/services.

While about 80% of the vaccine services in Tanzania are funded by the government, UNICEF and WHO have also been reported to play a role in supporting immunization services. The government meets costs for vaccines, cold chain equipments, transport, personnel emoluments and office expenditure. UNICEF is reported to fund EPI activities such as social mobilizations, IECs, training and as a procurement agent for vaccines and cold chain equipments. Similarly, the WHO meets the costs for disease surveillance and technical support. Other funding partners were the GlaxoSmithKline (GSK).

The EPI national office does not collect all district health plans and is, therefore, not completely informed about the level of health sector funding being received by the districts, how they are allocating those funds among different health activities, or the specific immunization activities being carried out. Due to time limitations, the study team was not able to collect and review district comprehensive health plans to assess how district-level funding of immunization activities has changed. However, funds for kerosene, which the MoHSW had been giving to districts in the past, are now being transferred directly from the Treasury to the local District Executive Director (DED) accounts. Thus, a specific line item for kerosene is required under the district budget guidelines.

It is important to note that central level funds cover the vast majority of immunization activity costs, including vaccines, cold chain equipment and maintenance (except kerosene), other equipment and supplies, training, and national monitoring and surveillance. Some of the changes in donor funding are a result of diverting funds formerly going directly to the EPI to the basket fund.

DANIDA which used to provide vaccines, injection supplies, cold chain equipment, and other types of support to the EPI for many years, currently, their support is largely through the basket fund. UNICEF's support to the routine EPI has also declined significantly over the past few years. At present, UNICEF receives no earmarked funding for routine EPI costs.

Medicines

Access to essential medicines has been one of the implicit policy objectives in the health sector since independence. It is indeed one of the important aspects of the Tanzania National Drug Policy (1993) (MOHSW, 1993). The national drug policy is a dynamic reflection of the National Health Policy since it attempts to operationalize the general policy statements enshrined in the health policy document. The overall objective of the National Drug Policy (1993) is to provide free and comprehensive basic health services to all Tanzanians at affordable costs. This is in line with the constitution of Tanzania, which provides for the right of every individual to life and enjoyment of good living standards. The overall objective of the drug policy seeks to contribute to the attainment of the right to life by ensuring free and comprehensive health services to all Tanzanians. This is intended to be achieved through making available to all Tanzanians at all times the essential pharmaceutical products which are of quality, proven effectiveness and acceptable safety, at a price that the individual and the community can afford.

The concept of essential drugs underlies the selection of drugs in that those drugs of utmost public health importance are given first priority. One of the criteria of essential drug selection is cost and price. Drugs will be selected and distributed as generics, and the number of drugs in the market will be restricted to two brand name products for each drug on the national drug list. This may not be the case today since there may be more than two brand names for a generic drug on essential drug list.

The supply of medicines, equipment and medical supplies for government health sector is centrally coordinated by the Medical Store Department (MSD). MSD is a semi-autonomous government department under the MoHSW created in 1993. MSD has eight zonal stores and a headquarters and a central warehouse in Dar es Salaam.

Since 1984, dispensaries and health centres have been supplied with medicines and related supplies through a push system (drug kits); i.e., each primary health facility received a monthly kit with standardized contents. Although the system was easy to operate, it was unable to address needs of health facilities due to the difference in morbidity pattern resulting into wastages and shortages of medicines and related supplies in health facilities. In order to ensure a reliable supply of medicines, equipment and medical supplies in these facilities, the MOHSW has developed new system namely Indent System and Integrated Logistic System (ILS).

Regulatory mechanisms for quality, safety and effectiveness of medicines

Tanzania has had difficulties for instance regulating the private pharmaceutical sector. There is evidence of malpractices among the private retail drug sellers particularly in terms of quality of drugs, dispensing practice and drug pricing. Despite the development of the Tanzania Food and Drugs Authority (TFDA) in 2003 to regulating the drug sector, there is still more to be done to monitor the operations of private retail drug sector. This is important as private retail drug sellers are closer to most of the population, and normally the first care seeking site for people who may not be able to go through health facilities for diagnosis.

The government has established the TFDA as a regulatory body for quality, safety and effectiveness of food, drugs, herbal drugs, cosmetics and medical equipment. It was established by Act No 1 of 2003 – The Tanzania Food and Cosmetics Act which repealed the Pharmaceutical and Poisons Act No. 9 of 1978 and the Food (Quality Control) Act No 10 of 1978. This body registers all drugs which comply with the rules and regulations of the Act. These are the only drugs and medical resources which can be procured by MSD or any other private dealer. Unless the drug or medical supply or equipment is registered by the TFDA, it cannot be imported or used in the country. Before TFDA was established, the Pharmacy Board registered drugs. The TDFDA obtained bigger mandate to include food and herbal medicines.

Health sector reforms and equity in access to essential medicines in Tanzania

Equity is a fundamental principal attached to Tanzania's heritage from its past. The health sector reforms following the Arusha declaration therefore aimed to address the discriminatory urban-based health care system inherited from the colonialists after independence as stated in *The second five year development plan* (1969). This plan stresses equitable distribution and access to social services, with targets set at one health centre for every 50,000 people and one dispensary for every 10,000 people. The government of Tanzania therefore embarked on free health care strategy to all people and banned the provision of health care services by the private sector in 1977. This was to ensure an equitable access to health care for all people in the country without discrimination, in line with the Alma Ata declaration of 1978 of 'Health for All' by 2000.

However, due to the economic crises, which faced many developing countries in the 1980s, the health care system could not meet the health care needs of Tanzania's people. Hospitals faced shortages of medicine and clinical equipment and unmotivated medical staff. This situation revealed a defeat of the noble national objective of ensuring equitable access to health care service by all people in the country and points to the infiltration of commercialization into the health system. In 2007, Tanzania reviewed its National Health Policy from which the Primary Health Services Development Program (2007 - 2017), popularly known as MMAM was derived. This was geared into improving accesses and equity of health care services in the country.

The distribution of medicine in Tanzania has been improved by introduction of different approaches which replaced the pre-determined Essential Drugs Programme (EDP) Kit system that was a push arrangement for a fixed period of time.

Indent Programs

Indent Is a system whereby a Health centre or a Dispensary orders drugs and medical supplies according to their requirements up to the budget limit. The system serves orders from distant customers, processing the orders, pack and finally delivering the supplies to the customer (health facility or dispensary).

The Ministry of Health has instituted a policy to replace essential drug kits with an indent system in order to tailor drug orders to fit the needs of each particular area and to reduce wastage. The MOHSW introduced a pilot project in the Morogoro region in 1999, where health facilities placed their orders with MSD through the District Medical Officer. The assessment team was informed that compared to the kit costs, the indent system reduced the value of consumed supplies by 24% [----- Personal Communications). It was not possible to verify this information, however, and anecdotal evidence suggests that the budget for the indent system was higher than the cost of the kits previously supplied to the pilot districts. Moreover, stock-outs at MSD are reported to have delayed the delivery of some indent orders. Given the conflicting evidence available, therefore, it is not possible to judge whether the indent system is working effectively.

Integrated Logistic System (ILS)

This is a system for managing various categories of health supplies, using a single set of procedures. The ILS is a type of Indent system where Dispensaries, Health centres and Hospitals order quantities of each supply according to their needs and within their budget. To be successful, the ILS must fulfil the six Rights of supply management. According to MSD, the system and its staff must ensure that they order:

- The right items
- In the Right quantity
- Of the Right Quality
- Is available at the Right Place
- At the Right Time
- For the Right Cost.

Accredited Drug Dispensing Outlets (ADDO) Programme

Rationale for the ADDO System

Part II poisons shops, popularly known as *duka la dawa baridi* (DLDBs), constitute the largest network of formally licensed outlets for basic essential drugs in Tanzania. DLDBs are found in all districts. Although exact numbers are not available, more than 4,600 DLDBs are estimated to exist, about one for every 7,400 persons. This figure is over 50 percent higher than the equivalent figure for all public health facilities and 11 percent higher than all public, voluntary, and religious facilities combined. For a variety of reasons, DLDBs are often the most convenient retail outlet from which to buy drugs. Moreover, with drugs not always available in public primary health care facilities, patients will often turn to DLDBs to obtain medicines and supplies prescribed by the government health worker. Given the minimal pharmacy services in rural and poor urban areas, it is obvious that DLDBs play an important role that could be enhanced in providing access to essential drugs for a significant proportion of the population. Available data, however, reveal a number of major problems with DLDBs;

- Insufficient number of qualified staff
- No assurance of drug quality
- High drug prices charged to patients

- Insufficient variety of drugs legally available to meet consumer needs
- Stocking of drugs unauthorized by the Pharmacy Board

Each of these problems is exacerbated by inadequate enforcement of regulations, difficulty in finding reliable and legal sources of drugs and supplies, and a limited list of authorized drugs. The Accredited Drug Dispensing Outlet (ADDO) program is designed to address each of the problems associated with Part II shops.

Conceptual Overview of the ADDO System

The adopted strategy for improving the quality of products and services in DLDBs through ADDOs seeks to combine changing the behaviour of shop owners and dispensing staff by providing education, incentives, and regulatory coercion with efforts affecting client demand and expectation with regard to quality products and services. The core of the system begins with clients with illness who make decisions to seek or access care. These decisions appear to be based on cultural beliefs about what type of treatment is needed for a particular illness or condition (traditional, spiritual, modern, etc.), distance to care providers, seriousness of the illness, wealth or availability of cash, failure of previous treatments, drug availability in public facilities, perceived quality of local care providers, and provider referrals.

The assessment has revealed some access gaps in respect to drug availability, primarily in the public sector, and issues related to quality and affordability of products and services, especially in the private retail sector (Mhamba et al., 2005). These mainly include the following: (1 geographical access to drugs does not appear to be a problem and is not perceived as a problem by the public; (2 availability of drugs is a problem at the Medical Stores Department (MSD), especially, but not exclusively, at zonal stores outside of the Dar es Salaam zone; (3 availability issues exist in public sector primary health care facilities and also in many hospitals; (4 availability does not seem to be a significant problem at mission health facilities; and (5 in respect to quality of drugs and services, SEAM data revealed that the public cannot be assured of the drug quality for a significant proportion of drugs in the Tanzanian market.

These findings pose major challenges to the MOHSW, namely to seek the ways and means to improve the availability of drugs in the public sector, especially in hospitals and primary health care facilities, and to improve the quality of products and services in the private sector. To address these challenges, strategies were developed and approved by the MOH for implementation. The strategies included (1 establishing a network of accredited drug dispensing outlets (ADDOs) in rural and peri-urban areas of the country to provide an increased range of products similar to those approved for primary health care facilities; (2 establishing a tiered pharmaceutical product quality assurance program; and (3 establishing an alternative, private sector supply system to augment the MSD supply system for the public sector, other MSD clients, and possibly rural retail drug outlets by providing quality, competitively priced health commodities. The strategies for establishing a network of accredited drug dispensing outlets and drug quality assurance are currently being implemented.

In a nutshell, the ADDO program began as a pilot program to improve the quality of care provided in *duka la dawa baridi* (DLDBs), private drug shops. DLDBs were originally constituted by the TFDA to provide non-prescription medicines in the private sector. DLDBs

currently constitute the largest network of licensed retail outlets for basic essential medicines in Tanzania, with more than 6,000 shops across all districts in the country. However, based on evidence that DLDBs were not operating as intended, (CPM, 2003) the MoHSW through TFDA in collaboration with the Management Sciences for Health and Regional and Local Government Authorities Strategies for Enhancing Access to Medicines (SEAM) Program piloted the ADDO program in Ruvuma from 2002 to 2005, with funding from the Bill & Melinda Gates Foundation. The program was designed to provide Tanzanians living in rural and peri-urban communities the opportunity to purchase quality-assured nonprescription and a limited number of prescription medicines from regulated, properly operated drug outlets staffed by trained dispensers, particularly in places where accessibility to public health facilities is limited or when there are stock-outs of essential medicines at public health facilities. After successful piloting in Ruvuma, the Government of Tanzania decided to roll out the program to other regions.

In line with MKUKUTA the expected benefit from ADDO program might contribute to poverty reduction. Specific benefits include:

- Improved access to quality, safe, effective and affordable medicines to a larger population.
- Reduced waste of time in searching for medicines and thus saving time for other productive activities;
- Creation of income generation activities for ADDO owners;
- Creation of reliable employment for ADDO dispensers especially women
- Creation of a skilled pool of trainers, dispensers, and inspectors.
- Increased revenue collections to the Local Authorities and Tanzania Revenue Authority.
- Improved referral system for patients who first consult drug outlets
- Creation of a system for application and repayment of loans by ADDO owners through micro financing institutions
- Assurance to access of medicines through health financing schemes such as National Health Insurance Fund and Community Health Fund

Funding for procurement and management of drugs and medical supplies in Tanzania

While the per capita expenditure on health is about USD 5.5, drug expenditures by the MOHSW represent between 14-19% of the total health expenditures, with 50-60% of this amount going to primary health care. Actual expenditure on these items in 1999–2000 was about USD 0.30, indicating a sizable shortfall in funding for essential drugs in the public sector. Budget allocations to hospitals for drugs and medical supplies are made on a population basis. PHC drug kits consume about 50% of drug and medical supply resources, and the first priority for funds received is supplying kits to health centres and dispensaries.

A financing gap of about USD 3.5 per capita was estimated. The gap is particularly acute in “other charges” and indicates a shortfall in the provision of essential drugs and medical supplies in the public health sector.

Rational Drug Use and Registration

The essential drugs concept is the vehicle used to ensure access to medicines that address the most common prevalent conditions in the country. The NEDLIT and Standard Treatment Guidelines were revised, and the second edition was published in 1997. Both the Pharmaceuticals and Poisons Act, which is the law that regulates pharmaceuticals, and the NEDLIT are currently under major review to accommodate present-day needs. Mission hospitals do not have their own essential drug lists, but use the NEDLIT as a resource.

The Pharmaceutical and Poisons Act required that all pharmaceuticals be registered. However, enforcement of this provision was weak until 1999, when new management at the Pharmacy Board began to enforce registration requirements more vigorously than previously. To carry out this work, the Pharmacy Board instituted a registration unit with a staff of seven. Some of the pharmacists have extensive experience in various areas of pharmacy but limited experience in registration issues; however, some unit members have attended training sessions. The government's commitment to support the essential drugs list concept is clear.

Procurement of drugs and medical related supplies

MSD successfully procures millions of dollars of pharmaceuticals and medical supplies from the international and domestic market. MSD management purchases drugs at highly favourable prices when compared to international standard pricing. MSD is the sole supplier for the public sector and primary supplier to faith-based and other nongovernmental, non-commercial groups providing health services in Tanzania. On balance, MSD is a financially strong organization that procures drugs at extremely favourable prices, has a relatively good distribution capacity, and has shown a record of improved workforce performance. However, problems with stock availability have been evident in recent years and projections of significantly increased demand, together with the implementation of the indent system, are likely to put further pressure on MSD's physical and managerial capacity as well as prevent any easing of availability problems.

To its credit, MSD has been taking steps to resolve drug and medical supply availability issues within its organization. The steps should serve to improve drug availability. However, even with increased efficiencies, a number of factors seem to indicate that MSD is likely to continue to exhibit some degree of difficulty in dependably meeting all the requirements of its clients. To the extent that this is a reasonable evaluation of the situation, the government may want to consider options for alleviating the pressure on MSD by making it possible for hospitals to buy drugs and medical supplies from other approved suppliers.

Distribution of drugs and medical related supplies

The predominant single distributor of pharmaceuticals and medical supplies in Tanzania is the MSD. Since the government deposits funds for its health facilities with the MSD, it has a virtual monopoly for distributing pharmaceuticals and supplies to all public sector health facilities, including District Designated Hospitals managed by church organizations. In addition to supplying government facilities, MSD has the country's pre-eminent drug distribution system. The MSD's distribution strength, combined with competitive, if not the lowest, prices, means that it supplies the majority of commodities to mission/faith-based health facilities. Given the country's reliance on the MSD for drug distribution, both public sector and private sector

representatives have expressed concern that any inability of the MSD to meet client requirements could have disastrous effects on Tanzania's health care system.

MSD has a good distribution capacity and record. For example, a survey undertaken by Price Waterhouse in 1998 to determine whether medical kits reached their intended beneficiaries indicated fewer discrepancies with MSD deliveries than with district deliveries. During the period under study, MSD distributed more than 46,000 blue and yellow kits. Of these, less than 1 percent could not be accounted for, which is a noteworthy achievement. When discrepancies did occur, they were attributed to poor record keeping and the possible diversion of kits in transit.

Major increases in workload in the last three years have stretched MSD's physical and managerial capacity. There are signs that MSD is working under considerable stress and that service is not meeting customer expectations. The increase in throughput volumes is evidence of this increase in workload. It should be noted that MSD has responded well to this increased workload, with evidence of improved workforce performance. MSD has responded positively to the challenges it has faced in recent years. However, projections for future funding indicate demand continuing to grow significantly. One must question whether it is reasonable to expect that MSD can continue to absorb an ever-growing demand or whether there is a limit on how much can be realistically expected. This question is important not only in light of future demand projections, but also in relation to MSD's documented weaknesses in certain areas, such as inventory management.

In summary, the distribution structure of medicine and medical supplies where Manufacturers, wholesalers, sub-wholesalers, donors, and the MSD are the principal distributors in Tanzania is described as follows;

- Foreign manufactures sell products to the MSD, local manufacturers, importers/wholesalers, donors, NGOs/voluntary agencies, and private hospitals.
- Local manufacturers sell products to the MSD, wholesalers, NGOs, and large private institutions (hospitals, retail pharmacies, etc.).
- Donors provide drugs to NGOs and voluntary agencies.
- The MSD distributes products to government health facilities, NGOs/voluntary agencies, and parastatals from seven zonal stores.
- Major importers/wholesalers sell primarily to sub-wholesalers/stockists, large private health facilities, and retail pharmacies. Sales to the public sector and NGOs/voluntary agencies are generally minimal.
- Sub-wholesalers sell to smaller pharmacies, private health facilities, drug outlets (*Duka la Dawa Baridi/Duka la Dawa Muhimu*), and smaller wholesalers.
- Consumers obtain their products from public sector health facilities, private sector facilities, NGOs, pharmacies, and other drug outlets.

Non-MSD Distribution Costs of drugs and medical related supplies:

The MOHSW Distribution Costs from District to Health Facility MSD is responsible for distributing primary health drugs and supply kits down to the district level, while the cost of distributing the kits to health facilities rests with the district health authorities.

Drug and Medical Supply Demand Forecasts

Different sources provide different projections for drug expenditures. Regardless of source, all projections indicate an increase in demand for pharmaceuticals and medical supplies. Other sources also indicate an increase in funding for drugs and medical supplies. These include, for example; Expected financing generated by hospital cost-sharing and the CHF was expected to rise from TZS 2.96 billion in 2000–2001 to TZS 10.95 billion in 2003–2004. Up to 50 percent of this funding was expected to be spent on drugs. National Health Insurance Fund (NHIF) annual expenditures on drugs are difficult to estimate, but they are expected to approach TZS 220 million. MSD's own projections have shown a 40 percent growth in throughput volumes between 1999–2000 and 2002–2003. Looking at the longer term, MSD projected throughput is expected to triple in size by 2010. Based on these volume projections, by 2010, MSD's throughput can be expected to rise to 40,000–50,000 cubic meters. This compares to 22,000 cubic meters in 2000–2001. At present, 50 percent of MSD's business is with pre-packaged kits. For MSD these are four stock items (local and international blue and yellow kits). Replacing this with an indent system will mean that MSD will have to pick and pack all PHC-level orders on an individual basis (for more than 3,000 health facilities). This change has major implications for warehousing systems, picking and packing operations, and inventory management.

MSD's ability to handle future demands

For the near future, MSD will remain the backbone for supplying the country's public sector health commodities. However, evidence that it may not be able to fully satisfy public sector demand is compelling. Out-of-stock rates at MSD zonal stores appear to indicate a stressed condition. Workload has doubled over the past five years and there is every indication that workload will continue to increase. MSD is actively taking steps to improve its operational capacity but even in the best of all worlds, there is scant evidence, if any, that a single vendor can or should be expected to reliably provide 100 percent of country requirements. One approach that could alleviate supply availability problems is the implementation of an alternative supply system such as the prime vendor system described previously. In essence, the system would provide quality, low-cost medications to public and approved private sector facilities with convenience at least comparable to that of MSD. Such a system is predicated on availability of funds in the regions/districts to procure needed supplies. Since all funds are currently deposited with MSD, the current hospital funding mechanism for drugs and supplies would require modification.

The key questions to ask regarding MSD's ability to handle future demands are (1 can MSD meet current demand satisfactorily and (2 can MSD meet expected future demand. In considering these questions, MSD's capacity to absorb the effects of the indent system must also be assessed. It is useful to look at the implications for MSD of continuing to be the sole supplier for publicly funded health facilities. Although organizational and informational system improvements may take MSD some way toward achieving this target, there must nevertheless be room for doubt as to whether MSD would achieve everything expected. In fact, based on the available evidence, it is arguable that demand has already outstripped MSD's ability to supply. It is recognized that implementation of an alternative supplier program will require extensive cooperation from both

the public and private sectors, and a thorough evaluation is required by the government to determine feasibility of such a program.

Access to Essential Medicines, Vaccines, and other medical supplies

The measures of access to essential medicines and medical supplies include; Geographic Accessibility, affordability, acceptability/satisfaction, rationale for the ADDO System, and conceptual overview of the ADDO System.

Major challenges

- Decline in immunization coverage from 99% before 2007 to 86% in 2008. The factors contributing to the decline (shift in mode of funding, health sector reforms and decentralization of the programme) are far beyond the EPI control.
- Shift in financial support for social mobilization services. Community campaigns are not funded
- EPI personnel not being core members of the RHMT and CHMT affect the quality and frequency of supervision at service delivery level.
- Inadequate storage facilities: Although the Vaccine Management Assessment Report reported a general adequacy in infrastructure in terms of buildings, storage capacity and transport at all levels (MOHSW, 2007), this review has noted that the change from single disease condition vaccine to the introduction of the pentavalent vaccine in 2005 which utilizes one vaccine vial for each child/client has increased the bulkiness of the vaccines. This requires a large storage system at national, regional, district and service delivery levels.
- Drop in immunization coverage from 95% to 83% before 2007 and 2008, respectively
- Discrepancy between NBS population statistics and the actual number of eligible children and pregnant mothers.
- How to finance the immunization program after GAVI support ends, particularly in light of declining bilateral and multilateral support to the EPI.
- Given the minimal pharmacy services in rural and poor urban areas, despite that the DLDBs play an important role in providing access to essential drugs for a significant proportion of the population, available data reveal a number of major problems which include;
 - o Insufficient number of qualified staff
 - o No assurance of drug quality
 - o High drug prices charged to patients
 - o Insufficient variety of drugs legally available to meet consumer needs
 - o Stocking of drugs unauthorized by the Pharmacy Board
- A lot of ground remains to be covered, for example in registration, inspection, ensuring a culture of operating within minimum standards of practice, dealing with counterfeits, and regulating and ensuring quality of care in *duka la dawa baridi* (private drug shops).
- MSD remaining the sole agent for procurement and distribution of drugs and medical supplies.
- Major increases in workload in the last three years has stretched the MSD's physical and managerial capacity. The government options for alleviating the pressure on MSD by making it possible for hospitals to buy drugs and medical supplies from other approved suppliers.

CHAPTER 3: FURTHER ROLES TO BE PLAYED BY THE DEVOLUTION OF RESPONSIBILITIES FOR HEALT FACILITY AND HEALTH PLANNING TO LOCAL GOVERNMENT AUTHORITIES

Background to Local Government Reform Process in Tanzania

The Government of Tanzania has a long history of reforms. On attaining independence in 1961, the then government of Tanganyika set structures of implementation such as decentralized institutions at various levels to fight the three enemies, namely poverty, illiteracy and diseases. The central government, local governments and other institutions like religious sects participated in the provision of social services, including education and health care. In terms of governance, the new government abolished the Native Authorities established in 1926 vide Native Authorities Ordinance (Cap 72), and created an entirely new structure of Councils covering the whole country. In 1961, there were only 17 Councils, but by 1972, this number had risen to 68. These Councils were composed of elected Councillors with a small number of appointed members. No provision was made for elected bodies below the Districts or Town Council, thus narrowing the scope of democratically elected local governments. Between 1972 and 1984, the post colonial local authorities were replaced by a direct Central Government rule, in a policy popularly known as "decentralization". At the time of their abolition, there were 66 rural/district Councils and 15 urban Councils in Tanzania.

The Decentralization Era 1972-1984

Institutionally, the government switched from partnership to direct management of the development process and provision of social services. A number of committees were established in the villages, wards, districts and regions, as vehicles for people's participation and Regions became the primary drivers of rural development planning and implementation. The salient features of 1972-1984 decentralisations included the following:

1. Urban Councils merged with neighbouring rural councils.
2. Government focus and emphasis was on "Socialism and Self Reliance".
3. There was big extension of Central Government Authority and control to Village level.

Decentralization era culminated in de-concentration of the Central Government for all social services and economic development activities.

Local Government Reform between 1980 and 1998

The Local Government Reform Programme is the vehicle through which the Government promotes and drives the decentralisation process. Its over-arching goal is to contribute to the national drive towards the reduction of the proportion of Tanzanians living in poverty. Its stated purpose is political, administrative and fiscal responsibilities devolved from central to local government, underpinned by good governance, so enabling Local Government Authorities to provide more equitable, quality services to Tanzanians, especially the poor.

In 1980, the ruling political party i.e. Chama Cha Mapinduzi (CCM) ordered the Government to revive the Local Government System in the whole country before the parliament enacted

legislations; Acts No.7, 8, 9, 10 and 12 1982 to reinstate power to the people through sound Local Governments. Local Government elections took place in 1983 and Acts No.7 and 8 reintroduced rural and urban Local Government Authorities respectively effective from January 1984.

Between 1990 and 1992, further government and political reforms took place in Tanzania, manifested through Public Service Reform Programme (PSRP), political reforms which led to Tanzania re-introduced Multi-Party Democracy. The reintroduction of local government authorities (1984 -1998) raised hopes for an improved performance through greater involvement of citizens. However, the improved performance in service delivery as well as development initiatives through broad-based public involvement was not being achieved as anticipated, due to several underlying reasons:

1. The human resource capacity and management was weak and this seriously constrained performance by Local Government Authorities.
2. Weak leadership and poor management of the councils.
3. Shortage of properly qualified, disciplined and committed personnel.
4. Shortage of revenue due to narrow tax base.
5. Over-employment within the Councils.
6. Lack of transparency and accountability in the conduct of Councils' business.

In 1996 the Government decided to restructure the regional administration, giving more room for development of the Councils. Regions became facilitators, rather than implementers. In the devolution process the Regional Health Management Teams became part of the Regional Administration, instead of being part of the MOHSW.

In the country there are 133 Councils, in districts, municipalities and towns. There are 21 Regions. At national level the councils are overseen by the Prime Minister's Office for Regional Administration and Local Government (PMO-RALG). At the national level laws, systems and guidelines are developed, helping Local Government Authorities to perform their tasks.(Mmari 2005).

The LGRP was formulated and implemented by the government in order to address the problems which constrained the performance of the local government authorities as mentioned above.(Ngware 2005) Through the programme, the government intends to strengthen local authorities and transform them to be effective instruments of social and economic development at local level. Detailed aims of the reform include:

- Letting people participate in government, at Local level and elect their leaders e.g. Councillors, "Mtaa" and Kitongoji leaders etc.
- Bringing public services under the control of people through their local councils.
- Giving Local Councils powers (Political devolution) over all local affairs.
- Determining the appropriate and cost effective organizational structures for local government authorities.
- Improving financial and political accountability.
- Securing finances for better public services.
- Creating a new local government administration answerable to local councils and to local needs.
- De-linking local administrative leaders from their former ministries.

- Creating new central -local relations based not on orders but on legislation and dialogue.
- To create good governance based on political and financial accountability, democratic procedures and public participation. The ongoing Local Government Reforms can generally be classified into two types, namely Systemic and non Systemic Reforms.

The Policy Paper on Local Government Reform

The *Policy Paper on Local Government Reform* spells out very clearly Government's vision of a reformed local government system, and this, and other key reform documents, is available on web-site, www.po-ralg.go.tz. These must be provided through reformed and autonomous local authorities. Charged with operationalizing the Local Government Reform, and now concentrating on implementing Decentralization by Devolution [D-by-D) policy is the Local Government Reform Programme, which involves the following five main areas, namely, Fiscal decentralization, administrative decentralization, political decentralization, service delivery function of decentralization and changed central-local relations. (Ngware 2005) Local Government Reform aimed at decentralising government functions, responsibilities and resources to LGAs and strengthening the capacity of local authorities, towards a Shared Vision for Local Government in Tanzania. The government of Tanzania therefore gives a special focus on district health services in the context of the government's policy of decentralization by devolution and the commitment to reaching the goals under *MKUKUTA* and MDGs within the overall Government Vision 2025.(Mmari 2005; URT 2007; URT 2007)

The decentralization by devolution programme in Tanzania is a vast, dynamic and complex programme of change and change management. (Mmari 2005) This programme entails the transfer of powers, functional responsibilities and resources from central government to local government authorities. It also stands as the main strategy for the government to achieve the overall objective of the reform: to improve the delivery of services to the public.(PMORALG 2004) The Government's vision is to have a local government system in which Local Government Authorities are: a) Largely autonomous institutions, free to make policy and operational decisions consistent with the laws of the land and government policies; b) Strong and effective institutions underpinned by possession of resources (both human and financial) and authority to perform their roles and functions; b) Institutions with leaders who are elected in a fully democratic process; c) Institutions which will facilitate participation of the people in planning and executing their development plans and foster partnerships with civic groups; d) Institutions with roles and functions that will correspond to the demands for their services; and Institutions which operate in a transparent and accountable manner. (Ngware and Haule 1993; URT 2007; URT 2007)

Tanzania has decentralised many Government functions through Decentralisation by Devolution. Local Government Authorities (LGAs) are responsible for delivering public services in local health services, primary education, agriculture extension and livestock, water supply, and local road maintenance.(URT September, 2009)

Achievements

Decentralization by devolution in health sector

This brings us to the first part of the motto: partnerships. The Decentralisation by Devolution policy has put the Local Government Authorities in charge of delivery of social services and has given to the Prime Minister's Office for Regional Administration and Local Government (PMO-RALG) the task to supervise them. Moreover, other Ministries Departments and Agencies have to support the Ministry of Health and Social Welfare in improving health, e.g. through education, agriculture or water supply. The health sector has to work in partnership with all the government institutions that have a responsibility in health related service delivery. In Tanzania a coherent system of Government policies, legislations, strategies and programmes is emerging, giving direction to development. Consistency between general and sectoral policies is increasing. Step-by-step a national framework for monitoring of economic and social development is created into which sectors provide input. Devolution has a far reaching impact on the health sector, whereby Local Government Authorities have become responsible and the MOHSW has withdrawn from direct service provision at district and municipal level.(URT September, 2009)

The role of the other actors in implementing decentralisation by devolution

Local Government Authorities are responsible for delivering three types of public services in Tanzania. Mainland: (1) concurrent functions; (2) exclusive local functions; and (3) delegated functions. Concurrent functions are public services which are funded and regulated by the central government, but for which the provision is devolved by the sector ministries to the local government level. Health services belong to these concurrent services. All Councils produce annually a Comprehensive Council Health Plan (CCHP), which incorporates all activities of the District Health Services, and all sources of funding at the council level (government funds, locally generated funds, local donor funds, etc.). The CCHP is produced by the CHMT, with inputs from the health facilities, the non-state actors and other co-opted members. It is approved by the Council Health Services Board (CHSB), which consists of community representatives, officers from other departments, and representatives from the private sector. The final plan is approved by the Full Council Meeting. The Regional Secretariat (Regional Health Management Team) approves the CCHP and forwards it to national level. The PMO-RALG together with the MOHSW assesses the CCHPs and gives final approval, before funds can be disbursed to the LGAs.

In the future, further decentralisation will give more responsibilities to the health facilities to plan and manage health activities in collaboration with communities and village governments. The LGAs provide quarterly technical and financial progress reports (including the health component) to the respective Regional Administrations, as part of the local government monitoring system. The Regional Administrations approve the health part of the reports, which are forwarded to national level and aggregated by PMO-RALG. In the future improvement of the quality of the technical progress reporting of these reports and better utilisation by the MOHSW for monitoring is planned.

The funds for health services are managed by the Council and kept on a separate account (called account no. 6). Funds for health are released by the MOFEA, including funds from the Health Basket Fund, kept in a holding account at that ministry. Funds generated through insurance schemes and cost-sharing are kept in separate accounts under supervision of the CHSB. The Health Facility Committees with community representatives decide on utilisation of those funds in their respective health facilities, within guidance provided by the CHSB.

The Regional Administration is part of PMO-RALG and directly supervises the work of the LGAs. The Regional Medical Officer is an officer of the Regional Administration. The RHMT is located in the Regional Hospital and performs its duties of supervision and support to the District Health Services. The functions had been reduced as part of the local government reforms, but now agreement has been reached that stronger technical support by the RHMTs on behalf of the MOHSW is mandatory to improve the quality of the health services. During the implementation of the HSSP III these intentions will be concretised.(URT September, 2009)

Complimentarily in management

Government's policy of devolution makes LGAs responsible for implementation of health services, and regions responsible for supervision. The central level provides leadership and stewardship in the health sector.

District: Council institutions will take full responsibility for executive tasks in health and social welfare, applying LGA and PMO-RALG administrative procedures, with technical support from the MOHSW. Human resources in facilities will be prepared for management functions, to facilitate further decentralisation.

Region: RHMTs concentrate on technical support to improve quality of the Council health services, without taking over operational responsibilities.

Central level: MOHSW head quarters will create an enabling environment for the health services, leaving executive functions to the appropriate stakeholders (in MDAs, LGAs and private sector). The Ministry will decentralise more executive functions to agencies and institutions under MOHSW. (URT September, 2009)

Stewardship of the health sector

The Ministry is responsible for policy development, strategic planning, resource mobilisation and monitoring and evaluation in the health sector. Government provides the overall political and policy guidance to the Ministry, whereby the MKUKUTA programme provides the overall guidance to development programmes in Tanzania. Further integration and harmonisation of MOHSW activities with the MKUKUTA management and monitoring is expected in the coming period.

As result of the Decentralisation by Devolution the Ministry does not have direct responsibilities for operational service delivery at the LGA level. However, the Ministry provides guidance to service providers and monitors the quality of the service delivery. The Tanzania Quality Assurance Framework, with an accreditation system, will be an important new tool for the Ministry in guiding the health sector. The technical guidance by the ministry to the service providers is mainly given through the health programmes, which are based in head quarters. These programmes provide treatment guidelines, standard operational procedures and contribute to capacity building of service providers. In the future this support will be more integrated and coordinated, in order to improve efficiency. For resource mobilisation the Ministry relates to Government, and produces budgets in collaboration with the MOFEA.(URT September, 2009)

Achievements

Some major early achievements have been recorded:

- a clear policy statement on reform, supported by the highest levels of government;
- legislation to enable the reforms;
- regulations to support the reforms;
- information on the reforms;
- regional administration was restructured in line with its new role;

Decentralisation by devolution (D-by-D) focuses at key issues which include finance, human resource development, legal, restructuring and governance. Some of the current reforms in the health sector include the Primary Health Care Organizational Reform (popularly known MMAM= *Mpango wa Maendeleo ya Afya ya Msingi*), National Health Insurance Fund (NHIF), Community Health Funding (CHF), Decentralization of Health Services, and Basket Funding (BF). MMAM aimed at improving access to health services through opening of more health facilities. The plan is for each village to have a dispensary, and each ward to have a health centre.(Mboera, Kilale et al. 2009).

The NHIF requires that each government employee is covered by a health insurance scheme. Under the CHF the community has to contribute a sum amount of money every year to cover health services. The Ministry of Health and Social Welfare is implementing the devolution of decision making policy to the district and regional level so that most activities and plan of activities are centred under the CHMT. Under this, the powers to recruit and retain health workers remain under the district councils. The government is trying to increase employment and retaining of health workers in order to provide better health services. A programme/ plan of increasing matriculation/student's admission in the universities and colleges which offer any health course is been implemented.(Mboera, Kilale et al. 2009)

Legal Harmonisation

Legislation to give effect to the reforms has been enacted by the Local Government Act No. 6 of 1999, and legal instruments necessary for implementation of the reform have been issued. Regulations to support the reforms have been passed. However, in order to fully implement the reforms, it is essential that we ensure that all relevant legislation is harmonized with the decentralisation policy. Efforts to harmonise central and sector legislation with government policy on decentralisation have been ongoing since 1999. An amount of work has been carried out under LGRP, including harmonisation reports on the six pro-poor sectors. Draft Bills have been prepared for the Education and Health sectors and submitted to government for approval.(Mmari 2005)

The lack of tangible results is not due to lack of commitment and effort on the part of PMOL-RALG, but is due in part to the sheer scale and complexity of the undertaking. It must be said that it is also due in part to the reluctance, or at least the lack of enthusiasm in central government and the sectors for harmonisation and the changes that will evolve. PMO-RALG has been re-examining its strategy, and has concluded that a new approach is required. This approach will be two-pronged, and will involve: i) amending the Constitution to enshrine the

decentralisation policy, and ii) preparing and bringing into effect a comprehensive Local Government Act.

Funding in the context of decentralization by devolution

Ministry of Health and Social Welfare is one of the pioneer ministries in the implementation of D by D policy whose thrust was to ensure devolution of expenditures to the LGAs over time. A study conducted in 8 Councils, found that the process of granting expenditure autonomy to the local levels is in progress in the health sector. (URT 2007) Block grants, which are the funds transferred by the central level to the local authorities constitute the largest share of the expenditures in all the Councils. (URT 2007) The funds allocated to health sector through the councils have been used in consistence with stipulated guidelines. For instance, block grants have been proven to be allocated to PE and OC, which is consistent with the guidelines set out in the CCHP manual.(URT 2007) Shares of resources managed centrally (by MoHSW) and locally (by LGAs) have changed slightly, indicating a slow pace in decentralization of health sector financing.(URT October, 2009) In FY2005/06, about 67% of total health spending was centrally managed (by MoHSW), while Local Government Authorities (LGAs) managed only about 33% of the spending in health (Figure 22). The situation improved in FY 2007/08, with the share of health spending managed centrally (by MoHSW) declining to 58%, while the share managed by LGAs increased to about 42%. So far, the share of health sector financing managed centrally has averaged around 60%, with the Councils and Regions managing about 40% of the resources. However, this separation does not take into account expenditures by the MoHSW on drugs and supplies which eventually go to the LGAs. (Ngware 2005) In the course of decentralisation by devolution, local Councils, especially rural ones, have benefited from a redistribution of health allocations through a more equitable pro poor Resource Allocation Formula in recurrent funding for health care.(URT 2007)

Challenges

The Government of Tanzania decided to pursue a complex and difficult policy of decentralisation by devolution, as journey rather than a destination. This was expected, and is the case internationally. However, it should also be noted that momentum for change is gathering, and more importantly, government support at the highest level for the process is unwavering. The staffing situation of skilled human resources remains glaringly deficient. The cadres most affected include medical doctors, nurses, clinical officers and pharmacists.(Mmari 2005)

There has been a lack of information on expenditures for all the Councils, hence limited determination of a comprehensive picture of how much the transfers to the local authorities represent out of the total public spending on health, and therefore a better determination of the scope of transfers in total expenditures, which would have been a good measure of performance of D by D in health. (MOHSW September 2009) Due to a lack of such information it is not possible to show a trend in the transfers to categorically conclude if there is consistency with the policy of fiscal devolution. (MOHSW September 2009)

District Health Services still face problems with low geographical coverage of health services in remote areas and a non-functional referral system. The infrastructure of some health facilities does not meet the official standards. Also policies, standards and guidelines are not fully used at

implementation level. They may not be known or understood by health workers or not read due to the human resource crisis and the ongoing sector reforms leaving the health workers with little time to study sector development. Occasionally, health workers in peripheral institutions do not function well: cases have been found of unacceptable attitude of health staff and corruption in the health sector. Provision of the comprehensive National Package of Essential Health Interventions therefore cannot be fully provided.

Other challenges include inadequate managerial skills of staff in various areas. Supervision within the district to facilities needs improvement and supervision from the RHMT to backstop CHMTs is not optimal. As a result health programmes are not always implemented as designed. The integration and coordination of health programmes in general is poor. Programmes sometimes seem to compete for attention from health facility staff. But, most importantly, there is inadequate human resource for health service delivery at the primary level, both in numbers and in skill mix.

Council Management Teams are not fully informed on health policies, programmes, or specific activities, and may therefore not appreciate their importance. Furthermore, the Decentralisation by Devolution has not reached the grass root level, leaving health workers and communities disempowered. Decision making is too much concentrated in the district centres. Motivation of staff to perform is not always as required for good performance.(URT September, 2009)

To some extent, some policy development process are initiated and pressurized by development partners and donors. On the other hand, research institutions and universities, have some capacities to carry our health researches, disseminate and translate research findings for policy development. However, they have no formal and reliable forum to convey the evidences to policy makers. This gap, necessitate the need (i) for establishing a forum (knowledge broker) that will strengthen the linkages between policymakers and researchers in a way that promotes a continuous dialogue throughout the research and policy-making processes; (ii) to improve the dissemination and repackaging of research findings for policymakers; and (iii) to strengthen the capacity of local researchers in research communication and policy analysis.(Mboera, Kilale et al. 2009).

The current local government structure does not provide adequate autonomy to local governments. They are unable to make important decisions independently because many legal provisions make the local government dependent on the Central Government. The local governments must have the unfettered power to serve the local people rather than act as agents for the central state as a pre requisite for D by D to be successful in sustainable grassroots social development (Ngware and Haule 1993).

Ngware and Haule also argue that limited autonomy and authority of local governments is evidenced by hiring and disciplining mechanisms for local government personnel. Apart from the so-called "casual labourer", local authorities lack the power to discipline or dismiss or unruly personnel. All these powers are vested in the Local Government. There is no evidence if Service Commission, which is the appointing and disciplinary authority, is connected to the local authorities, because the local authorities "employees" are subject to the control of the district/municipal/city directors who are appointed by the President. These directors wield a lot

of clout because of their decision making powers and control of financial matters.(Ngware and Haule 1993).

Wards can act as a bridge between district councils and villages due to the fact that each ward has a councillor who can represent the interest of his/her constituency in the district council meeting. (Mniwasa and Shauri 2001)

The decision making process in local authorities is mainly controlled by local bureaucrats (Council officers in collaboration with District and Regional Commissioners) and not the elected members (councillors), contrary to an ideal assumption that elected members of the local government make decisions while local bureaucrats implement those decisions. However, this is not the case (Kessy 1999.)

A study conducted in two district councils (Moshi and Lushoto) revealed that, most of the decision making process, from agenda setting to the implementation stage, is mainly controlled by local bureaucrats. This phenomenon is attributed to the central government's reluctance in emphasizing high quality councillorship. (Kessy 1999.; Mniwasa and Shauri 2001) Instead, the outdated provision of someone who can read and write is the criteria used to elect a councillor. The level of interaction between councillors and council officers in the decision making process is minimal. Despite the council officers typically being better educated, more experienced and having an expertise in health matters as compared to the low educated councillors who are sometimes more vocal in small policy decision issues. (Kessy 1999).

The district government's control over revenues collected through CHF hinders the responsible ward's/ village authorities capacity to solve immediate problems such as facility maintenance.(Mushi, 2009) However, there are frequent delays in the delivery of services or the completion of health services. In addition, staff shortages and/or inadequately trained staff for dealing with health services delivery at the local level is a continual problem. As such, local government positions are often undermined, and this leads to turnover, lack of morale and commitment to innovate or deal with local issues creatively. Such challenges are not unique to health sector. Decentralisation by devolution has been shown to have not adequately met the exiting needs for education and environment (Mniwasa and Shauri 2001; Mmari 2005).

For effective environmental and natural resources management by local authorities, decentralization must ensure effective devolution of mandates from the centre to the local levels. An ideal decentralized system according to UNDP (1997) has the following main characteristics:

1. First, local units of government are autonomous and clearly perceived as separate levels of government over which central authorities exercise little or no direct control;
3. Second, the local authorities have clear and legally recognized geographical boundaries within which they exercise authority and perform public functions;
4. Third, local authorities have corporate status and the power to secure resources to perform their functions;
5. Fourth, devolution applies the need to "develop local governments as institutions" in the sense that they are perceived by local citizens as organizations providing services; and

6. Finally, devolution is an arrangement in which reciprocal, mutually beneficial and coordinated relationships between central and local government exist.

Review of the progress of decentralization in Tanzania indicates that UNDP goals the five have not been met. It is therefore recommended that the impetus of future local government reforms should be geared towards effective devolution of powers, clarification of mandates and giving ownership and access to natural resources as prerequisites for empowering local governments to manage the health facilities and services. Local governments should be allowed to hire and fire their own staff, plan their conservation programmes, control natural resources situated in their geographical boundaries and generate revenues from planned and sustainable utilization of natural resources in their areas.

Since, the success of health service delivery depends on the involvement of local people, health programmes should ensure that local people benefit from such programmes. In addition, they must be empowered to undertake health service delivery and management tasks through participatory approaches at the local levels. Health programmes should be tailored in a way that local people get immediate economic benefits by engaging themselves in conservation efforts. The government should consider the need to involve and strengthen the participation of the private sector, NGOs and CBOs in the management of health services. The process of registration and regulation of NGOs and CBOs should also be devolved to the local level. Currently, the registration process of NGOs is too bureaucratic, cumbersome and done only at the national level. By encouraging the formation of NGOs and CBOs, plus the participation of the private sector in conservation efforts, the role of local governments in conservation of natural resources and the environment will be achievable and highly successful.

Local government should focus much more than the provision of basic services. The very existence of a tier of government designed to reflect the priorities of local communities, meant that it should take on the role of “empowering” the community. Examples of popular innovations may include the following:

- The use of quotas or reserved places to improve cross community representation leading to a more inclusive political structure with greater engagement of the community in priority setting;
- Privatisation and outsourcing of services to make delivery more efficient and in some cases, resulting in community groups taking responsibility for managing their own resources;
- Clearly defined mechanisms of appeal against decisions to make local government more accessible and accountable.

The role of “capacity building” at local level was identified as a key issue as the calibre of both elected officials and staff varied across the Commonwealth countries. In developing countries, particularly those where local government was not well entrenched or endowed with status, the brightest candidates did not necessarily work at local level. Participants agreed that local government had the potential to provide a fertile training ground for future high-flyers if it could be made more relevant. This would be best done by expanding civic education and knowledge about democratic rights and responsibilities as well as improving training for councillors and elected officials.

The value of active civil society networks in enhancing local capacity was also seen as extremely relevant to capacity building. They were also a means of empowering local communities, and, as long as the differing roles of local government and civil society were acknowledged, could serve as a vehicle for securing joint objectives (CS, 2000).

It is worth referring to the following recommendations as raised in a conference on decentralisation by devolution (CS, 2000).

- Decentralisation should not be solely administrative; it has to be political, participatory, financial and administrative. It covers all spheres of sub national government from the centre to provinces, regions and local levels.
- Local government has to be about much more than the provision of basic services. It should reflect the priorities of local communities and empower them. There is a nexus between grass-roots development and grass-roots democracy.
- Civil society actors have very different mechanisms for accountability and while decentralised structures might promote cosy relationships, it is for the elected representatives to act in the interest of all constituents.
- Local governments should improve the efficiency of their programmes for economic development, poverty reduction and social services and promote sustainable development.
- It is necessary to be clear about what is devolved. There is bound to be a certain degree of natural tension between spheres of government. This tension could result in control being wrested back by the centre.
- The roles of different spheres of government need to be clearly defined, whether thorough constitutional or legislative means or through less formal arrangements.
- Central and decentralised institutions should reflect the diversity of society in their composition. Decentralisation is both a means of enhancing good governance and a means of managing diversity within the state.
- Decentralisation can pull in different directions: on the one hand it can act as a check on centralising forces; while, on the other hand, it can help manage centrifugal forces and accommodate divisive political tendencies.
- Robust decentralised structures facilitate checks and balances on the powers of different spheres of government.
- Transparency and communication is essential to a vibrant democracy including the declaration of interests. The sharing of knowledge and information between various spheres of government, NGOs, civil society groups and the community at large is integral to good governance.
- Fiscal decentralisation is a central component of regional and local self-government without which accountability and performance are ineffective. Fiscal autonomy means that local governments should have the capacity to raise resources themselves to reduce dependence on central government.
- Meaningful fiscal decentralisation should include equalisation policies between different communities and government spheres, so that individuals might have access to reasonable level of public services, wherever they live
- in the state.

- The desire of local governments to reach across national borders in a search for economic, technical and other partnerships or sharing of experience is noted as an increasing trend.
- The role of capacity building at the local level is a key issue particularly where local government is not well entrenched. Training for officials and especially for councillors is a priority.
- Civic education is an essential element in enhancing the democratic process as it empowers citizens to make more informed choices about their priorities.

Tanzania as a country has certainly learnt from international experience. Nevertheless, there is no 'right' way or single model to achieve decentralisation. Some of the constraints include resistance to change at central and local government levels; Insufficient emphasis on publicising the reforms at all levels; Lack of implementation capacity at PO-RALG and at LGA level; and Persistence of financial mismanagement at LGA level

Further roles to be played by devolution

A new LGRP phase for the period July 2008 – June 2013 has started, which aims to eliminate the institutional, legal, organisational and operational bottlenecks to realisation of D-by-D policy at all levels of government, and improve collaboration with line ministries. There will be further fiscal decentralisation, and further decentralisation of human resources management. Line ministries will delegate more operational tasks to LGAs. The LGRP will build the capacity of LGAs to be efficient and effective organisations in the planning and implementation for delivery of basic social services, socio-economic development and poverty reduction interventions. The LGRP will empower citizens to demand accountability and integrity as well as efficient and effective use of public resources. The Government of Tanzania (GOT), through PMO-RALG, implements the Local Government Capital Development Grant (LGCDG). This system provides discretionary development funds for rehabilitation and expansion of infrastructure to local authorities. Over time the LGCG is intended to become the mechanism through which all development funds will be transferred to Local Government Authorities (LGAs), in accordance with GOT's commitment to Decentralization by Devolution. The aim of the reforms is to establish decentralisation by devolution (D-by-D). This implies that Local Government Authorities (LGAs) take full responsibility for planning, budgeting and management of government services, including health, education, and water supply. A separate window for rehabilitation of health facilities has been established in 2008.(URT September, 2009)

It might be useful in future to combine quantitative review with in depth qualitative information to establish how the D by D process is perceived by district level managers, or if the restrictions imposed on how the transfers should be allocated are considered prohibitive, or if the districts have the capacity to plan and allocate the resources appropriately. (MOHSW September 2009). Further decentralisation of power and decision-making is necessary from district level to facility level, as well as expanding RHMT mandate over CHMT functions. Financial transparency must be secured at all health facilities and health facilities should open and operate their own accounts for CHF, NHIF, and user fee funds. Supportive supervision to both public and private facilities should be strengthened and should include clinical skills in the supervision checklist. Facility governing committees should be established or strengthened to broaden and deepen the

community's ability to influence priorities. The Plan-Rep tool should be made more user friendly also to ensure consistency between Plan-Rep and CCHP indicators, targets etc. To improve the planning process the budget ceilings should be communicated early and the proposed HMIS strengthening project should be fast tracked to provide better information for planning. MoHSW should take leadership in improving collaboration with private health care providers and the Service Agreement framework should be strengthened and used much wider than it is today. There is also a need to improve the provision of essential medicine, supplies and equipment to FBOs for maternal & Child Health services and to improve communication and transport between referral levels. Realising the substantial impact of the human resource crisis the team recommended that a joint discussions be arranged among respective Ministries (MOHSW, PMO-RALG, OPPSM, MOFEA), and that retention strategies be established for health workers in hard-to-reach regions. With respect to financial decentralization the group suggested to improve public financial management at the periphery through capacity building.(MOHSW 2009). Other initiatives include creation of enabling environment for to overcome persistent irregular supply of essential drugs necessary at levels of the health delivery system to minimize unnecessary referrals.(URT 2007)

There is a need to devise participatory innovative and at times unconventional mechanisms, at district, ward and village levels to ensure timely and a smooth referral system while maximizing on locally available facilities and skills within districts in order to ensure continuity of care. This will ensure organized and timely access to specialized referral services for populations within all districts across Tanzania.

- Conclusion: Decentralisation by devolution is widely documented. It is anticipated that a thorough review will capture the necessary information for a coherent synthesis.

Future role to be played by devolution

To mitigate the problems the Government undertook the following:

- *Continue with the IEC campaign to create awareness among the public on their roles and responsibilities in this programme;*
- *Build more houses for health workers in remote areas as an incentive to existing and new providers.*
- *Quarterly reporting on physical and financial implementation to compare progress against target;*
- *More on transparency and accountability of resources allocated to health facilities and money generated through user fees and CHF.*

The Ministers and Heads of delegation in charge of Decentralization and Local Government, accompanied by Senior Civil Servants, Chairpersons, Associations of Local Governments, and Mayors representing different countries of Africa at the Pan-African Conference of Ministers of Local Government and Decentralization, Elected Women Local Government Leaders and Development Partners held in, Yaoundé, from the 28th to 30th of May 2008, agreed on the following strategies bearing in mind the challenges.

Capacity Building strategies

- Have a comprehensive country specific capacity policy based on the principles of inclusiveness, mutual peer partnership, gender sensitivity, innovativeness and creativity
- Create country specific institutional arrangements for creative and innovative capacity building

- Give due reference to the principles and context in the implementation of policies for capacity building.
- The local government process should determine the substance and specific requirements and be able to establish core principles for assessments, determination of capacity gaps and addressing the identified gaps within country and across country.
- Establish core benchmarks for measuring Capacity Building for Local Governance and use it a basis for performance assessment and impact on interventions. E.g. Benchmarks, Creativity, Innovation and Transformational
- Identify areas/countries that could serve as best practices and use them as learning points for study tours within the context of South-South Cooperation and mutual learning.

Resource Mobilisation

- Create adequate incentives for Local Governments for mobilizing Local revenues
- Empower the citizens to play an active role in revenue mobilization, utilization and accountability.
- Have well defined statutes for revenue sharing between national and local government
- Utilize and enforce mandates which have been given to Ministries of Local Governments for instituting statutes for local revenue mobilization
- Adopt institutional mechanisms for engaging communities in decisions on revenue management from fee fixing to reporting through public hearing, publishing local accounts report and developing a citizen's charter.

Elected Women in Local Government

- Develop mutual support among women
- Insist on adoption of laws on affirmative action within political parties and governments
- Support economic and political empowerment of women
- Promulgate and implement legislation to provide and protect land ownership for women and remove or revise discriminatory laws and property rights
- Within the context of participatory budgeting local government should make budgets that are gender sensitive
- While Civil Society pursue to explain and establish the difference between cultural and religious values to suppress stereotypes against women, Governments should endeavour to abolish gender discriminatory laws,
- Implementation of measures enhancing women's education including awareness of human rights laws and how to use them should be promoted

Partnership and Decentralised Cooperation

- Local Government ministries should give support by way of policy and legislation to Partnership and Decentralised Cooperation
- Develop Guidelines and institutional framework for Partnership and Decentralised Cooperation
- MDP where requested by respective countries should assist in developing a standard approach for policies and Institutional framework for Partnership and Decentralised Cooperation at the country level

Based upon these strategies and taking into consideration current opportunities and goodwill the following commitments were agreed upon;

- Undertake diagnostic studies/ Rapid assessments on capacity for Local Governments to identify gaps, innovative responses, best-practices and disseminate.

- Encourage, in the African context, the promotion of partnership and decentralized cooperation through the identification of best practices the sharing of these shining cases among the peers of local government institutions
- Match existing capacity (human, equipment, resources) and competencies to roles and functions using available information.
- Review existing capacity building policies and implement them with the view to responding to identified capacity gaps

Resource Mobilisation

- Governments must have very clear institutional process for revenue sharing
- Establish processes for open governments and community participation in revenue management
- Governments and specifically local government institutions work assiduously to adopt innovative means of enhancing local revenue mobilizations and management.
- Establish processes for participatory citizens' scrutiny of local government activities and functions.
- Governments must encourage the culture of having citizens charter

Elected Women in Local Government

- Governments should support elected women leaders in local governments to form a network at local government, national and regional levels to bring them together and provide a forum through which issues and challenges confronting them in their work can be addressed in a sustainable manner.
- AMCOD should recognize the critical input of pre-conference seminar for elected women local government leaders and thus future AMCOD meetings should be preceded by a pre-conference for elected women leaders in local government to discuss critical issues affecting them.
- Local governments, central governments and international development partners should support study tours among African local governments to provide opportunities for the exchange of experiences and practices for capacity-building of elected local government women leaders.

Partnership and Decentralised Cooperation

- Ministries responsible for Local Government should established institutional arrangements and mechanism for decentralized cooperation and peer to peer mutual learning.
- Governments should open and broaden up the scope of the cooperation to include CSO, the Private sector and other non state actors.

In conclusion Ministers reaffirmed their commitment to and endeavour to give their support to the implementation of all the outstanding issues

CHAPTER 4: THE POTENTIAL OF DIFFERENT HEALTH FINANCING OPTIONS

Introduction

Public health service delivery has been financed largely by public resources through the government budgetary allocations. Apart from use of budgetary resources to fund health service delivery, use of user fees, cost sharing, and use of pooled funds like insurance funds has also been adopted as alternative options. This is a good move given the fact that the limited resources available for the government budget and the growing needs of health services delivery due to demographic changes as well as impact of diseases like HIV/AIDS, malaria and tuberculosis.

The health sector funding through the government budget has seen significant progress since 2000, when the PRSP was adopted. The funding to the health sector increased progressively over the recent past, with significant funding also channelled to the LGAs where majority of Tanzanians live. Despite the increased budgetary allocation to the sector, the Abuja Declaration has not been met. For instance, since FY03 to FY10 budgetary allocation to health sector has been hovering around 10 percent of the total budget. The allocations have also been short of required allocation of \$9 on per capita terms.

The per capita spending has been increasing over the review period. However, the per capita health spending is still low, at an average of about TShs 14,215 in nominal terms, while in real terms (2001 constant prices), is still below TShs 10,000. In Dollar terms, the average per capita health spending is about US\$ 11.23 over the review period and with health sector claiming about 10-11% of the government budget, reaching the WHO's estimated per capita spending of US\$34 in order to adequately address health challenges, remains an uphill task. Also, the level of spending is still far short of HSSP III projection of achieving US\$15.75 per capita spending by 2009/10.

The Health Sector' has also remained in addressing other challenges that continue facing the sector, including, the shortage of human resources for health; the provision and strengthening of preventive health services in the country at all levels through health promotion, and the control and prevention of communicable and non-communicable diseases, including Malaria and HIV/AIDS and emerging and re-emerging diseases such as the H1N1 flu virus. In 2009/10 for instance the sector MTEF focused on ensuring the availability of primary health care services with an effective referral system, action oriented research and promotion of community participation and involvement. The issues of availability of quality, safe, effective and affordable drugs, vaccines, contraceptives, medical diagnostic supplies and equipment require attention.

Funding of Health Sector

Overall Trends in Health Sector Budget

The large share of health sector funding comes from the government budget, through allocations to Ministry of Health and Social Welfare [MoHSW], Prime Ministers' Office Regional Administration and Local Government [PMO-RALG], National Health Insurance [NHI] and direct transfers to Local Government Authorities [LGAs]. The budgetary allocations to the sector

have increased of the recent past in absolute terms, and share of total budget - but have declined as percentage of GDP. Despite the increase in allocations to the sector but it still remains short of the commitment of Abuja Declaration. It is also short of requirement for delivering required health services given the growing need of health services due increased population and emergency and re-emergency of new diseases, such as H1N1 flu virus.

The share of health sector budget in the total government budget [excluding interest] has been hovering around 11-10 percent during FY05-FY10 period. It has also slightly declined from 2.7-2.5 percent over the same period [Figure 1]. The decline has been driven by the decline in foreign funding to the sector. The decline in foreign funding and the heavy reliance of the sector's development budget on foreign funding raises a concern on the sustainability of the sector funding over the medium-long term.

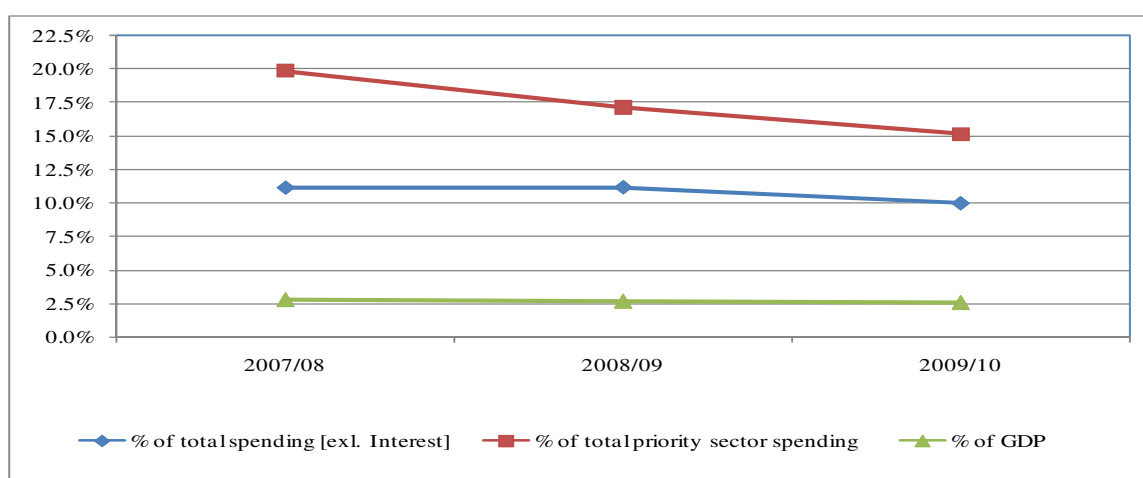


Figure 1: Health Sector Budget

The per capita spending has been increasing over the review period. However, the per capita health spending is still low, at an average of about TShs 14,215 in nominal terms, while in real terms (2001 constant prices), is still below TShs 10,000. In Dollar terms, the average per capita health spending is about US\$ 11.23 over the review period and with health sector claiming about 10-11% of the government budget, reaching the WHO's estimated per capita spending of US\$34 in order to adequately address health challenges, remains an uphill task. Also, the level of spending is still far short of HSSP III projection of achieving US\$15.75 per capita spending by 2009/10.

Trends in Sector Budget Composition

Recurrent and development budgets of the health sector have significantly increased over the past five years. However, development budget have increased faster than recurrent budget. Table 1 shows increase in health sector budgets, with development budget appears to have more doubled over the past five years. The recurrent budget has also increased but in a slower pace. The increase in recurrent budget has been driven by a significant increase in PE due to the government effort to address shortage of human resources in the sector. Development budget increase has been driven by the government efforts to expand access through construction and

rehabilitation existing health infrastructure [national hospital, referral hospitals, regional hospitals and construction of heal centres in rural areas] and also expansion of ARV program.

Table 1: Health Sector Budget Composition [in TSh]

Table 2a. Economic Classification					
	Budget Estimates				
	FY2005/06	FY2006/07	FY2007/08	FY2008/09	FY2009/10
	Original			original	Original
RE Expenditure	275.501.672.100	360.839.599.000	384.264.818.000	461.759.608.858	491.436.596.761
PE	26.863.855.700	58.737.588.500	68.136.307.000	255.302.000.761	264.624.991.166
OC	248.637.816.400	302.102.010.500	316.128.511.000	206.457.608.097	226.811.605.595
DE Expenditure	137.792.553.400	130.604.822.400	229.702.519.400	291.098.023.601	305.009.919.839
TOTAL	413.294.225.500	491.444.421.400	613.967.337.400	752.857.632.459	796.446.516.600

Source: MoFEA Budget Books.

The increase in health sector PE budgets have also come at the expense of OC budgets which have declined both in absolute terms and as share of sector budget. The decline in OC budgets comes in parallel with insignificantly small share of the sector but which is allocated for health sector infrastructure maintenance. The share of the sectors budget spent on infrastructure maintenance is less than 1 percent. This is serious challenge to the sector as this signals the possibility of losing the existing and currently constructed infrastructure or losing more money in order to recover it.

Despite the nominal increase in the recurrent and development, the relative shares of the sector PE and development budget have declined over the recent past, with a 1 percentage points decline in the 2009/10 budget compared to the 2008/09 budget. Also, as will be noted later in this study, PE, OC and Dev expenditure shares of the health sector expenditure in the MoHSW and the region level have remained largely unchanged from over the past few years but composition in health budgets of LGA have significantly varied in favor of development budget which have doubled over the same period. The point of attention here is to find the right balance between PE, OC, and development in out to obtain optimal balance for better health outcomes.

Looking at health sector funding by institutions, a significant progress has been made in directing more funding to the lower levels especially in LGAs. This is consistent with the MKUKUTA objective of promoting primary health services. It is also consistent with the D by D policy implementation. For instance, the share of MoHSW in the health budget has declined from 55 percent in 2007/08 to 46 percent in 2009/10 while the share of LGAs in health sector budget has increased from 23 percent in 2007/08 to 43 percent in 2009/10. The share of regions in the health sector budget has declined over the same period. This also the case with health insurance fund [HIF].

Despite the significant share of the total health sector budget being transferred to the LGAs, development budget remained significantly under the MoHSW. On average, more than 60 percent of the sector's development budget has been allocated to the MoHSW. Procurement of drugs, which is mostly centralized through the MSD, is one of the big items in the sectors development budget. In addition, rehabilitation of national and referral hospitals also constitute yet another big item, which are also budgeted in the MoHSW.

Table 2: Health Sector Budget by Institutions [in percent]

	2007/2008			2008/2009			2009/10		
	Recurrent	Development	Total	Recurrent	Development	Total	Recurrent	Development	Total
HIF	8.6%	0.0%	5.5%	7.4%	0.0%	4.5%	6.0%	0.0%	3.7%
MoHSW	48.4%	66.0%	54.6%	41.5%	67.6%	51.7%	42.6%	51.9%	46.1%
PMO-RALG	0.0%	1.4%	0.5%	0.0%	8.5%	3.3%	0.0%	0.3%	0.1%
Regions	7.4%	32.7%	16.3%	6.9%	0.0%	4.2%	8.1%	0.0%	5.0%
LGAs	35.6%	0.0%	23.0%	33.1%	23.9%	29.5%	40.6%	47.9%	43.3%
Others [incl. SA]	0.0%	0.0%	0.0%	11.1%	0.0%	6.8%	2.6%	0.0%	1.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: MoFEA Budet Digest

The nature of overall health sector spending is predominantly current spending as opposed to capital spending. On average, in the last two years slightly higher than 10 percent of the total health sector budget has been spent capital while about 90 percent being spent on consumption expenditures [Figure 2]. Despite the large share of health sector’s development being financed by foreign resources, capital spending have largely remained small but at a same time financed mostly by local resources. Procurement of drugs and other hospital supplies, which are predominantly current spending are classified as development budget because they are funded by foreign resources

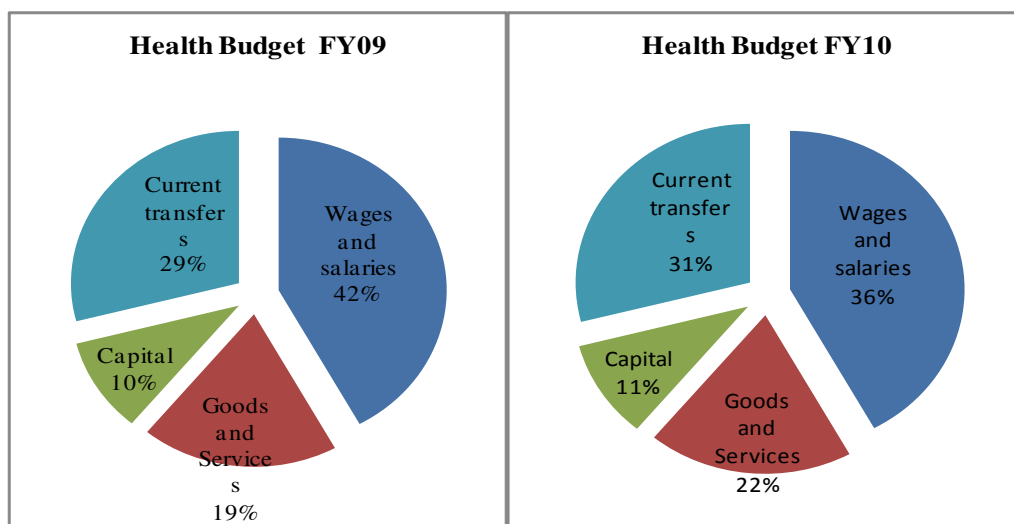


Figure 2: Health Sector Budgets by Nature of Spending

Wages and salaries, current transfers to LGAs and PEs, and procurement of goods and services constitute about 90 percent of the total health sector budget. This distribution highlights the critical importance of human resources, and medical supplies in delivering health services. The high share of allocations to current transfers also highlights the importance of LGAs in delivering health services, especially in the rural areas. The question remains on how much should be allocated in order to preserve the existing and newly constructed infrastructures, given the minimal amounts [usually less than 1 percent] being allocated currently.

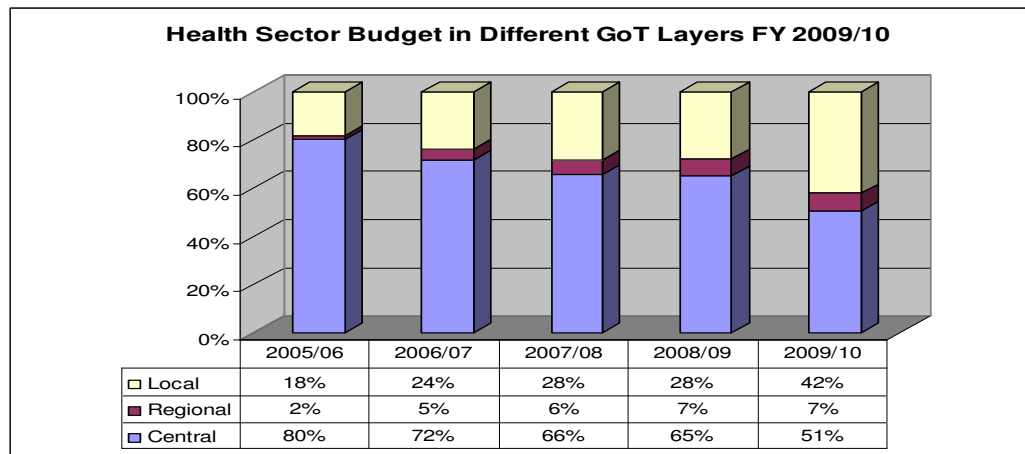


Figure 3: Health Sector Budget allocation among Different Layers

The share of the health budget allocated to LGAs has increased significantly while for the regions it remains stable and for the central ministries is on the decline. Despite the increased allocations to LGAs, majority of the sector funds are still allocated to the MoHSW budget. While allocations to the MoHSW and PMO-RALG have decreased from 80 percent to 51 percent, allocations to LGA and regions have increased from 20 percent to 49 percent between 2005/06 and 2009/10. Certainly, this is the outcome of implementation of the D by D policy together with some new activities planned at local level. In FY 2009/10, development budget for LGAs includes for example the construction of hostels for staff especially in the underserved LGAs. While this is a good indication, care should be taken in interpreting this finding as there are elements of the sector budget at local level better captured by the 2009/10 budget than the previous analysis. These include for example the allocation of MMAM and the LGCDG shares of the health sector budget. Table 2b provides further information on allocation of the health budget among different layers of the government.

Table 3: Health Sector Budget allocation among layers of GoT

	2005/06	2006/07	2007/08	2008/09	2009/10
Central	331.600.276.700	352.283.765.700	402.681.710.600	489.619.571.632	403.141.315.200
Regional	6.955.040.600	22.967.334.200	37.194.814.200	52.625.172.800	57.266.871.800
Local	74.738.908.200	116.193.321.500	174.090.812.600	210.612.888.027	336.038.329.600
	413.294.225.500	491.444.421.400	613.967.337.400	752.857.632.459	796.446.516.600

Source: MoFEA Budget Books

Trends in Sources of Funding Health Sector

The health sector has been largely being funded by the government budget, especially through the MoHSW, PMO-RALG, Regions and LGAs direct transfers. As the case for overall budget, health sector budget has also been financed by both local and foreign resources. In addition, funding to health sector has also been provided by user fees, pooled funds [HIF & CHF] in which case they are captured as subventions or retentions to/by specific public enterprises. There is also a significant funding to the health sector which is off-budget, through HBOs, CSOs, NGOs, for which health services are provided for free or beneficiary pay directly. The health

services delivery financed through off-budget is estimated to be as high as \$2 per capita in Tanzania. Nonetheless, the assessment of off-budgeting spending on health services will be difficult to estimates.

Local and Foreign Funding of Health Sector

Local resources from the budget continue to play a key role in financing the health sector in Tanzania. The contribution of local resources in providing health services has also increased over time; though with slow pace [Figure 4]. Foreign financing is a significant amount of the health budget but it is declining. The foreign financing of the health sector is more on development activities, although most of these activities are current spending in nature. As noted in fig 5 below, the amount of local resources going to the health sector has increased slightly while the share provided by foreign financing has declined for the past two years and is now below the share provided by donors in 2005/06.

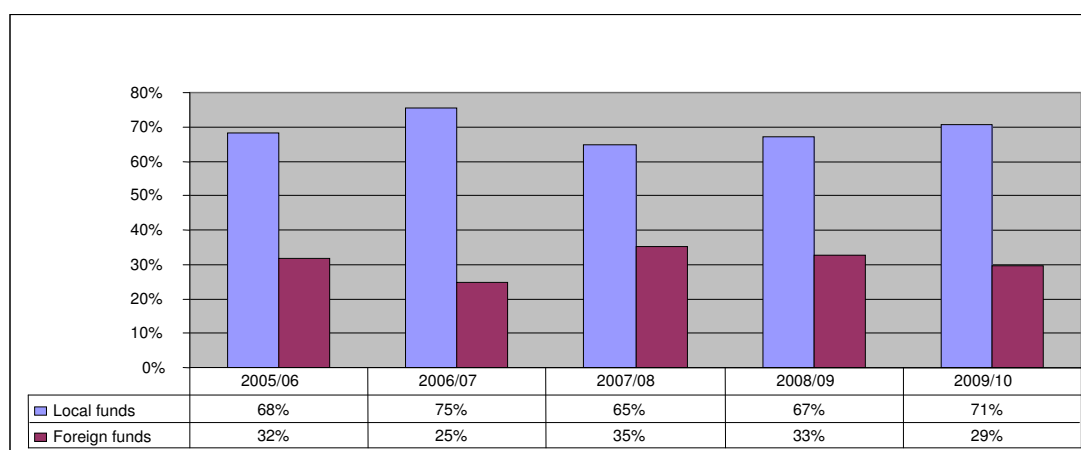


Figure 4: Sources of health Sector Budget 2009/10

In particular, there has been a consistent decline of foreign funds going to the sector through PMO RALG over the past two years. Whereas the share of foreign resources in MoHSW has gone down by 26%, PMO RALG health foreign resources have recorded a 60% decline between FY 2008/09 and FY 2009/10.

National HIF and HSF

Complementary health financing is becoming increasingly important in health sector financing, but there is significant amount of unused funds both at the National Health Insurance Fund (NHIF), and Health Services Fund (HSF). Total receipts for HSF almost doubled between 2006/07 and 2007/08, and about 89% of the receipts were used for health service delivery in 2007/08. NHIF contributions have also grown significantly from TShs 45.5 billion in 2006/07 to TShs 55.5 billion in 2007/08 (Table 3). Despite such an increase, significant amount of resources are unused both at the NHIF and HSF. This review has found that less than 15% of NHIF annual income is utilized by health facilities. Also, although cost sharing collections are perceived to be

insignificant, the LGA sub-study has found that cost sharing funds exceed Other Charges (OC) allocations in some specific LGAs. But, in total, HSF was approximately 2% of OC allocations to the LGAs in 2006/07, and increased to about 4% of the OC allocations to the LGAs in 2007/08.

Table 4: NHIF Income and Reimbursements 2004/5 to 2007/8)⁴

	2004/2005	2005/2006	2006/2007	2007/08
Contributions (Million TZS)	24,670	31,733	45,516	55,472
Total income (incl. Income from investments and others) (Million TZS)	28,610	39,142	56,884	72,168
Claims lodged (Million TZS)	4,900	5,400	9,600	10,800
Percentage of claims lodged against total income of NHIF	17.13%	13.80%	16.88%	14.97%
Reimbursements paid (Million TZS)	4,100	4,900	8,200	10,200
Reimbursement rate	83.67%	90.74%	85.42%	94.44%
Percentage of funds paid out to health services against total income of NHIF	14.33%	12.52%	14.42%	14.13%

Alternatives to Health sector funding;

(a) User fees:

This is a subsidized amount of money that is paid at the point of health delivery .User fees were introduced in Tanzania at the hospital level in 1993, as part of a broader package of reforms, referred to as the Health Service Fund. Further charges were introduced through the Drug Revolving Fund (DRF), again at the hospital level, in 1999. With the piloting and subsequent roll out of the Community Health Fund, they have subsequently been introduced at lower level facilities (that's to say, health centres and dispensaries) in a number of councils. Exemptions and waivers were an integral part of the design of the user fee system. Fees are viewed as a necessity for the introduction of social and community health insurance as they provide the incentive to enrol in alternative, less regressive schemes. Reports from hospital management teams indicated that fee revenues contributed 20-65% of revenues, with funds used to improve drug availability and other medical supplies, for minor rehabilitation, staff motivation, and transport, among other things.

(b) Social Health Insurance:

1. A move towards social health insurance (SHI) is a core element of the government's health financing policy. The National Health Insurance Fund (NHIF) was established in 1999, began its operations in 2001, and currently covers all public servants at both central and local government levels together with up to 5 other family members. The National Social Security

⁴ See URT (2009), Report on Training of Health Facilities in Lake Zone on Improvement of NHIF Claiming and Financing Management, Ministry of Health and Social Welfare, Health Sector Program Support.

Fund (NSSF), to which all formal sector workers contribute, is in the final stages of developing a health insurance benefit package for its members i.e. the Social Health Insurance Benefit.

2. NHIF is funded through a 3% employee payroll deduction matched by Government contribution. The scheme has a defined benefit package, and members are free to access services at any accredited facility of their choice. Government facilities are automatically accredited while faith-based and private providers have to conform to MoHSW standards. The fee for services has been adopted as the provider payment mechanism. It was stated that 88% of the claims had been reimbursed at January 2005, with providers using the revenues to improve service quality. The private sector share of claims is slightly higher than that of the public.

3. The scheme is administered by an independent body answerable to the Ministry of Health where by the administration costs are limited by law to 8%. The NHIF is slowly becoming a more important player as a purchaser of health services, but its membership is still limited.

4. The stated benefits of the scheme included assurance of access to services for members, a shift in attitude from apathy to ownership, and competition between providers resulting in improved quality. Problems included limited funds, inadequate numbers of participating pharmacies, and failure of some public facilities to meet standards. Once the NSSF Social Health Insurance scheme is in existence, the membership and benefit packages are likely to be basically similar to NHIF, but provider payment will be based on capitation with the potential advantages of linking members to specific providers, and providing a predictable cash flow.

(c) Community health fund:

5. The Community Health Fund (CHF) was piloted in Igunga district from 1996, and subsequently rolled out to 42 of the 92 councils at the time of the workshop, was the subject of much discussion. CHF is a voluntary scheme which enables a household to pay when they have funds rather than at the time of illness, with members entitled to access services up to and, in some council, including the district hospital level. Membership premia are decided at the council level and revenues from premia matched by a grant from government to respond to that which is found in the NHIF for civil servants while enhancing equity between the two schemes.

6. The CHF membership charges range between TShs 5,000 and Tshs10, 000. These funds are managed by the Council Health Services Board and the health facility committees. CHF revenues accounting for up to 20% of the value of Other Charges (non-salary government funds) in some council, are included in Council health plans, and are used largely for quality improvements. Technical support has been provided in some regions to create “CHF plus”, with a regional facilitation centre. Additional support to the scheme comes from the Tanzanian Network of Community Health Funds. Only 5.6% of Tanzanian population is enrolled in CHF against the target of 80% enrolment by 2015. The CHF apparently has the potential to create demand for quality services (empowerment of users), which poses a challenge for the Government to improve quality of care so as to encourage people to join the scheme.

7. Urban expansion through “Tiba kwa Kadi” (TIKA) was presented, aiming for a 10% coverage, along similar lines to the rural CHF. The UMASIDA and VIBINDO joint health schemes in Dar es Salaam were also presented as alternative models aimed at extending social protection to the poor and excluded people living in the rural areas. These schemes focus on mainly the informal sector employees, with advantages including more flexible membership options, for example, the possibility of a household, a group or an individual.

8. Despite the positive perception of the benefits of the CHF scheme, CHF enrolment still remains very low even in districts with functioning community participation. Possible reasons for low enrolment in CHF:

- misconception of the idea of solidarity; if someone in the household doesn't fall sick in a year, the contribution is considered a loss;
- poor marketing/advertisement, lack of information and poor mobilization;
- limited package of care; CHF membership not valid at referral level where it is needed most; quality of health services is not satisfactory;
- CHF card not portable, not valid beyond district borders;
- CHF card rarely accepted at faith-based health facilities;
- Political announcements during the recent election campaigns

(d) Exemptions and Waivers:

Exemptions and waivers were an integral part of the user fee policy introduced in 1994 and, by extension, of the CHF. An exemption is a constitutional entitlement to free health care services, which is granted to individuals who automatically fall under the categories specified in the cost sharing operationalisation manual; MCH services, including immunization of children in all Grade III services; children of 5 years of age and below; patients suffering from TB, leprosy, paralysis, typhoid, cancer and HIV/AIDS; cholera, meningitis, plague, and long term mental disorders (from CHF design manual).

A waiver is granted to those patients who do not automatically qualify for statutory exemptions but are in need of the same, and classified as 'unable to pay, in the operationalisation manual (as from the CHF design manual). Where drugs and supplies are available, patients apparently do not need to spend additional money at private pharmacies, and drug and supply outlets or at the health facility itself.

(e) Private Providers:

Here we are mainly referring to the organizations that exist alongside the ministry of health and are involved in the health sector financing to a certain extent. Private providers are often divided in two categories; (i) the Private Not for Profit including Faith Based Organizations (FBOs), Civil Society Organizations CSOs and Non Governmental Organization NGOs) and; (ii) the Private for profit providers (PFP) on the other hand.

The Private sector is believed to be responsible for about 40% of the health services provided nationwide⁵. Several FBO hospitals, designated as Council Designated Hospitals (CDH) are funded by government on the same basis as government owned district hospitals. The FBOs in the health sector are represented by the Christian Social Services Commission (CSSC) and BAKWATA for the Muslim organizations. CSSC is an Ecumenical umbrella organization established in 1992 with the aim to facilitate the delivery of health and education services. Under

⁵ MoH Statistical Abstract 2000 in <http://www.moh.go.tz/health%20facilities.php>

the CSSC 607 health facilities (87 hospitals, 68 health centres, and 452 dispensaries) are currently operational. CSSC has received support to increase its capacity to participate in the policy debate, make its own strategic analyses and effectively represent its members.

The Private for Profit health facilities (including hospitals, health centres, dispensaries, laboratories, pharmacies, nursing homes, physiotherapy centres, etc.) are represented by the Association of Private Health Facilities in Tanzania (APHFTA). APHFTA's 400 members form about 11% of the estimated 3500 PFP providers. APHFTA is actively engaged in policy dialogue and has initiated PPP initiatives at Regional and Council level. Besides the formal arrangement of Council Designated Hospitals various informal PPP initiatives have existed for many years.

9. Most FBO health service providers have been fully involved in the implementation of national public health programmes. Several PFP providers have included vaccination and disease control (e.g. TB) programmes in their service for which vaccines and medicines and sometimes also staff were provided by Government. More recently FBO and PFP providers have been involved in HIV/AIDS care and treatment programs. In 2007 a formal Service Agreement template has been developed by MoHSW, PMORALG, BAKWATA, CSSC and APHFTA, facilitated by the NPPSC which is to be used by Local Government Authorities (LGA's) to engage private service providers, including CSSC, BAKWATA as well as APHFTA members.

10. Since the beginning of 2008 about six of these have been signed. Although PMORALG has formally informed the Regional Administrative Secretaries and the District Executive Secretaries that such agreements can be made where a need for service exists, there is still considerable confusion on the degree of autonomy of Council health authorities regarding PPP arrangements. CSSC is in the process of training its members in the costing of health services as this will form the basis of their participation in Service Agreements. With the introduction of Service Agreement, PPP arrangements at national, zonal, regional and district levels have started to become more elaborate. Examples include signing of a Memorandum of Understanding between the NGO CCBRT and the Dar es Salaam City Council to be upgraded and to become a Designated Regional Hospital, several service agreements in TGPSH supported districts and Lake Zone zonal, regional and council PPP forums.

Achievement and Key Challenges

Over the past few years there have been significant achievements in terms of health sector financing. The few important lessons which have been seen over the recent past are:- (i) increased budgetary resources allocated to the sector; (ii) quick decentralization of sector in terms of resources moving to LGAs; (iii) good composition in terms of resources allocations to different levels of hospitals [national, regional & district], (iv) good impact of pooled funding of health service delivery, especially through the NIF; and good institutional set up including finalization of HSSP III; and many more other positive achievements.

Despite the achievements mentioned above some key challenges which will need to be addressed in order to obtain optimal outcome in health still remains. The challenges are mainly from the financing side of the health sector - (i) of recent budgetary allocations to health sector have been declining, both as share of total budget but also in absolute terms, and especially in FY10; (ii) inequity in budgetary allocations among LGAs continues, with some LGAs receiving 4 time

more than others; and (iii) little attention or budgetary allocations for health sector infrastructure maintenance, which in turn impairs public health service delivery.

Other challenges include; (iv) not enough attention to development and deployment of human resources (staff) to underserved and remote areas; (v) declining donor funding in the sector which put sustainability of sector funding at risk; (vi) too heavy depending of donor funding, which is also declining, of development budget of the sector and especially in LGAs; and (vii) off-budget funding to the sector which is major disruption to the already limited human resources in the sector.

The shortage of human resources in the health sector, which has been identified as a key issue for the sector, has not been adequately addressed. The total wage bill has stagnated as a proportion of the total sector budget. The incorporation of allowances and hidden costs into basic wages improves the opportunity to manage these resources, but overall, the human resources must be more adequately funded.

The policy of decentralization by devolution means that resources are being transferred to and managed increasingly by the local level. This move must be matched with improved management, with data collection and reporting appropriate to this enhanced role of local authorities. Local governments' public financial management systems will need to be improved to handle the increased responsibilities at this level.

There remains a significant reliance on donor funding, especially for development expenditure. As the development budget is increasingly decentralized, risks increase as LGAs do not have their revenue capacity to cope with potential reductions in donor funds

Key Recommendations

The key recommendations are drawn directly from the already identified challenges above and suggestions are based on the more pressing challenges. This should serve as the first cut suggestions which need to be considered in order to address financing challenges of health sector. The clear details of how suggested solutions should work can be developed later after discussion with key stakeholders in the sector – including MoHSW/ MoFEA, Development Partners, Private Provider, CSOs, FBOs, NGOs, Insurance Funds and health service beneficiaries.

Some of key recommendations include:

- There is a need to protect budgetary allocations to the health sector and reverse as soon as possible the declining trend of resources channelled into the health sector. Currently resources allocated to health sector, for instance in the 2009/10 budget, fell short of requirement by HSSP III and further below the estimated requirement by WHO and Abuja Declaration on per capita terms
- The effort needs to be made in order to increase local funding to the sector, especially development budget, given the unreliability of foreign funding. The observed trend in decline of foreign resources channelled to the sector is worrisome. In order to ensure

sustainability of sector funding declining foreign recourses in the sector should be matched by increasing local resources.

- There is need to make some more efforts in order to get a significant share of off-budget funding into the budget so that it becomes easy to account for the overall funding of the sector as well as monitor the progress achieved in health outcomes. This will also help to get optimal output from the health sector staff which is already overstretched.
- There is a need to address significant difference among districts in budgetary allocations, which is being driven by existing number of staff and facilities among districts. Specifically the government needs to find the way to attract staff to underserved districts. Perhaps sticking to the formula allocations of the health recurrent block grants among LGAs.
- The government needs to find a right balance in allocating resources among the three levels in the health sector – namely National, Regional, and LGA. Addressing most of the little health problems [eg. Disease] in rural areas will help to avoid overcrowding in regional and national hospitals but at the same time saving government resources.
- There is also need to address shortages in allocations for health sector infrastructure maintenance. Currently only less than 1 percent of the total health sector budget is being channelled to infrastructure maintenance. If this situation goes on unchanged will put to the sector in the risk of losing its existing infrastructure or incur very high cost in recovering it.
- User fee revenues shouldn't necessarily be considered in terms of their contribution to the overall sector resource envelope as this will remain small, but be viewed in terms of improving the availability of flexible funds at the facility or council level where they often represent the major source of discretionary funding for health facilities.
- Streamlining and improving the pre-paid and insurance schemes, i.e. CHF and NHIF, both to improve coverage and to reduce reliance on fees at the time of care-seeking.
- There is a need for regulation of the health insurance industry so as to be able to get a consistency between the different schemes i.e. NHIF, SHIB and many others.
- General view that the CHF is an appropriate financing mechanism particularly for poorer, more rural populations and so the fund should be expanded to the various rural areas around the country.
- Improved information and sensitization is required in order to ensure that the population is cognizant of the availability of free services for some groups and services while at the same time acknowledging the continuous challenges that the sector confronts in the areas of funding and human resources for health.

CHAPTER 5: ISSUES BEHIND LITTLE PROGRESS IN SOME HEALTH INDICATORS IN TANZANIA: MATERNAL AND NEONATAL MORTALITY

Introduction

Although has entrusted women with the function of human survival through childbirth, most often this function is performed with potential health risks to the women. It is estimated that more than 500,000 women die from pregnancy and childbirth related conditions, likewise 4.4 million newborns die per year. Most of these deaths occur in Sub Saharan Africa. Tanzania is one of the ten countries contributing to 61% and 66% of the global total of maternal and newborn deaths, respectively (9).

In spite of increased international and national efforts, Tanzania has maternal mortality ratio (MMR) estimates of 578 per 100,000 live births (6). About 13,000 women in Tanzania die annually due to pregnancy related causes. Around 80 percent of maternal deaths are due to preventable causes. The major direct causes of maternal mortality are Obstetric haemorrhages (ante-partum and post-partum), obstructed labour, pregnancy induced hypertension, sepsis and abortion complications. Factors underlying direct causes of maternal deaths include poor access to and use of emergency obstetric services, poor quality of care, shortage of qualified staff, low staff morale and lack of quality control and patient management.

Tanzania has a good progress in reduction of underfives mortality, however neonatal mortality rate remains high at 32 per 1,000 live births and accounts for 47% of the infant mortality rate. Newborn deaths are estimated at 45,000 per year and 50% of deaths occur in the first 24 hours of life while over 75% of them happen in the first week of life. Majority (79%) of newborn deaths are due to three preventable causes: infections including sepsis/pneumonia, birth asphyxia and complications of preterm birth.

Improving maternal, newborn and child health is a major priority area in the National Strategy for Growth and Poverty Reduction (NSGPR/MKUKUTA) 2005-2010 as reflected in the second cluster of the strategy. The operational targets related to maternal and child health for monitoring progress towards achieving MDGs 4 and 5(4) include reducing infant mortality from 95 in 2002 to 50 in 2010 per 1,000 live births, child (under five) mortality from 154 to 79 in 2010 per 1000 live birth, maternal mortality from 529 to 265 in 2010 per 100,000 and Increased coverage of births attended by trained personnel from 50% to 80% in 2010. In order to achieve the millennium development goals on maternal and neonatal mortality an annual drop of 5.5 per cent is required. Several interventions and strategies have been employed for reducing MMR and NMR. In spite of these efforts, these health indicators have persistently remained high. The current MMR and NMR are very far behind the MKUKUTA health targets hence it is very important to explore the issues behind slow progress to reduction of these health indicators in order to guide action for maternal and newborn health.

Maternal health services are the health services that are provided for women during pregnancy, delivery and in the postpartum period; and may include contraceptive use and family planning. Immediate and effective professional care during pregnancy, labour, delivery and after childbirth

can make the difference between life and death for both the women and their newborns, as complications are largely unpredictable.

What is the objective of this work?

Current intervention strategies, coverage and achievements

Maternal and newborn health strategies and initiatives

Reproductive health care services in Tanzania are available at community and various levels of health system from dispensaries, health centres and hospitals and through outreach services. These services include family planning, counselling, post abortion care, antenatal care and prevention of mother to child transmission of HIV (10).

Tanzania established integrated Maternal and child health services in 1974. Similarly in order to strengthen immunization services for vaccine preventable childhood diseases the Expanded Programme of Immunization (EPI) was initiated in 1975. In 1997 Tanzania adopted the Safe Motherhood Initiative (SMI), likewise in response to the International Conference for Population and Development (ICPD) which emphasized access to comprehensive reproductive health services and rights, Tanzania established the Reproductive and Child Health Section (RCHS) within the Ministry of Health and developed a National Reproductive and Child Health Strategy (9)

Persistent high maternal and neonatal mortality is one of public health issues addressed by various global and national commitments, as revealed in the targets of National Vision 2025 the Millennium Development Goals (MDGs), the National Strategy for Growth and Reduction of Poverty (NSGRP), and the Primary Health Services Development Program (PHSDP-MMAM) (10).

National Package of Essential Reproductive and Child Health Interventions focus on improving quality of life of women, adolescents and children. Maternal and newborn health care is one of its key components. The major elements of the package include: antenatal care; care during childbirth; care of obstetric emergencies; newborn care; postpartum care; post abortion care; diagnosis and management of HIV/AIDS including PMTCT and Family planning. Tanzania has adopted various strategies and nutrition interventions aimed at reducing childhood morbidity and mortality. The interventions include Integrated Management of Childhood Illness (IMCI) in 1996, Baby Friendly Hospital Initiative (BFHI) in 1992, Code of Marketing Breast Milk Substitutes in 1994 and Vitamin A Supplementation in 1997.

The National Road Map Strategic Plan to Accelerate Reduction of Maternal, Newborn and Child Deaths in Tanzania (2008 – 2015) was developed in response to the renewed commitment to improve maternal, newborn and child care.

Coverage of maternal and neonatal services

Tanzania has a good coverage of health facilities with over 90 % of the total population living within 5 kilometres from a health facility (1). However not all components of health services are available and accessible especially in remote areas.

Antenatal care services

TDHS 2004/05 report shows that 94% of pregnant women attend antenatal care at least once. However, the quality of antenatal care provided is poor. About 65% of the women have their blood pressure measured and 54% have blood sample taken for haemoglobin estimation and syphilis screening. About 41% have urine analysis done and only 47% are informed of the danger signs in pregnancy and childbirth.

Delivery services

Despite of high ANC attendance, only 47% of births occur at health facilities. Of all deliveries occurring in health facilities, only 46% are attended by skilled attendants. Currently only 64.5% of hospitals are providing comprehensive Emergency Obstetric care (EmOC) while only 5.5% of health centres are providing Basic EmOC and only 5 % of health facilities provide comprehensive post abortion care.

Most of the health care facilities lack space for maternal and child health services, around 70% of the dispensaries and 40% of health centres lack this compulsory component (9). Lack of adequate facilities together with lack of decision making power in reproductive health among poor women contribute to high levels of home- based deliveries.

Postnatal care

It is estimated that 83% of women who deliver a live baby outside the health facility do not receive a postnatal check-up (9); interestingly most of those who deliver at health facilities do not return back to health facilities for check up. In a survey conducted by Manji K etal revealed that only 5.7% of mothers interviewed returned back for check up after delivery and majority were those delivered by caesarean section. Furthermore most (71%) of interviewed mothers visited health facilities four weeks after delivery for their infant immunization and not for their own check-up. (11)

Prevention of Mother-to- Child Transmission of HIV

By September 2007, there were about 1,311 PMTCT sites established within reproductive and child health (RCH) clinics throughout the country. Check for the current status

Family planning

One major factor contributing to the challenge of attaining MDG goals related to maternal and neonatal health is the continued rapid growth of the population. Spacing the intervals between pregnancies can prevent 20 to 35% of all maternal deaths. Although about 90% of married women have high knowledge of contraceptives, only 26 % of them use any method of contraception of which only 20% use modern method.

Integrated Management of Childhood Illness

Case management of common childhood illness is a key step to reducing child mortality. The updated IMCI clinical guidelines have included the newborn, HIV/AIDS. So what?

Challenges

Institutional

The health system is weak hence cannot adequately respond to the health needs of its people in particular that of mothers and newborns. The health system is characterized by inadequate numbers of skilled health workers in such a way medical attendants, who are marginally skilled, are in most cases substituting for professional nurses; lack of needed equipment; insubstantial facilities; poor referral system and lack of essential obstetric services. Dispensaries don't have adequate space for MCH activities, health centres and some hospitals don't have theatres and skilled health personnel to provide Emergency Obstetric Care.

Referral system in Tanzania is not functioning well due to various reasons such as, serious shortage of health workers and expertise in all levels of health facilities, shortage of essential drugs and lack of diagnostic services and lack of transportation and communication facilities. These factors lead to unnecessary referral by unskilled staff and self referral by patients as a result denying the opportunity for other patients who need the service the most. Lack of integrations of maternal and neonatal services

Healthy policy

There are well written national policy documents targeting improvement of reproductive and child health services including maternal and newborn health. However, implementation of these policies is compromised by certain professional regulations and legislations.

Quality of care

The quality of maternal health services amongst other factors is partly responsible for ensuring a healthy mother and baby at the end of pregnancy, delivery, and in the post partum period. Quality of health services provision in most of health facilities is poor due to many factors such as inadequate capacity at health facilities in terms of space, skilled attendants, equipment as well as lack of functioning referral system. These factors leads to unfriendly services; lack of privacy in wards, consultation and counselling rooms together with overcrowding in diagnostic and wards as well as long waiting queues in diagnostic facilities.

Human, social -economic and cultural factors

Poverty, long distance to a health facility, lack of transport and poor road infrastructures in some areas especially during rain season and gender inequalities in decision-making and access to resources at household level are the major factors underlying poor access to maternal and neonatal health care; inadequate community involvement and participation in planning, implementation, monitoring and evaluation of health services; some social cultural beliefs and practices, gender inequality, weak educational sector and poor health seeking behaviour.

Cross cutting issues

Despite the good network of primary health facilities, accessibility to health care is still inadequate due to many reasons. In some areas the accessibility to health facilities is more than 10km and where accessibility is less than 5km to health facilities the availability of health care is inequitable, with human resource operating at 32% of the required skilled workforce. The shortage of staff housing at or close to health facilities is a major contributing factor which hampers recruitment and retention of qualified health workers in the rural areas. It is assumed

that 30% of the health centres lack adequate and suitable staff houses and 60% of the existing staff houses are in bad state of repair.

Lack of transportation and communication system such as radio calls, telephone and unavailability of reliable sources of energy particularly in rural facilities also affects progress in reduction of maternal mortality.

Recommendations

The principal problem in achieving health targets is inadequate coverage of the health system to deal with the health service needs of rapid increasing population in the country. Despite of a good coverage of health facilities there is an uneven distribution of health services to different communities. Most of available health facilities do not provide all necessary services due to shortage of skilled workers, equipment and diagnostic services.

In order to achieve the Millennium Development Goals as well as MKUKUTA targets on reducing child and maternal mortality the following are recommended:

1. Strengthening health system

Many studies on antenatal care have focused less on the quality and little information is provided on the arrangement in terms of care organization, provision and utilization especially in Tanzania. The availability and quality of skilled care of pregnancy, at birth and immediately after birth is a major determinant of the immediate survival and health of both mothers and babies. The current maternal mortality ratio in the country which is about 600 per 100,000 births suggests that maternal deaths still need to be given attention. The content of antenatal care is important in judging its quality and so on.

It has been documented that both maternal and neonatal mortality are lower in countries where pregnant women get skilled professional care, with equipment, drugs and other supplies needed for the effective and timely management of complications (REF). Studies have shown that adequate financing is a major factor in achieving provision of quality care in maternal health services (REF). In view of the above findings it could be inferred that inadequate or non-availability of facilities, equipment and resources especially basic resources to provide services could improve maternal and neonatal health in the country.

Human Resource for Health

Increasing the number of skilled birth attendants by upgrading and establishing more training institutions. Provision of on job skills development, capacity building and upgrading of allied health workers to meet the needs of the expanded primary health facilities. Attraction and retention strategies for skilled health workers especially birth attendants such as provision of housing, hardship allowances particularly in rural underserved areas. Increase access to emergency obstetrical care, skilled birth attendance and clean delivery, antenatal care and post-partum counselling, as well as safe abortion (where permitted by law).

Increasing Family planning and contraceptives coverage

Increasing Access to and use of family planning in order to reduce the number of unplanned and unwanted pregnancies and ultimately reducing the lifetime exposure to the risk of maternal mortality.

Equipment, Pharmaceuticals & Medical Supplies

Provision of essential equipments, pharmaceuticals and supplies for maternal and newborn health care to all health facilities to ensure best possible performance

Renovation and building operating theatres, labour wards, RCH

Referral system

To ensure the referral system is operational, and where necessary to establish teams of consultants to conduct mobile clinics and outreach to support health facilities quality health care and minimize unnecessary referrals.

Provision of the neonatal integrated package of interventions, immunization, the integrated management of childhood illness (IMCI), and the range of preventative approaches to public health such as mass distribution of insecticide-treated bed nets.

Community involvement and Empowerment

Pregnant women in the villages must at the same time be given the necessary training in looking after the newborn baby, the importance of breast milk, hygiene and nutrition. These efforts must be in conjunction with the development of the primary health care system in Tanzania.

Mobilization of fathers is important to support the implementation of any Maternal and Child Health initiative.

CHAPTER 6: IMPACT OF CLIMATE CHANGE ON HEALTH SECTOR

Background

This chapter provides an overview of climate change globally and nationally, and its impact on the health sector. The chapter is divided into an introduction providing a background on climate change in general and specifically in Tanzania. It then provides an overview of climate change related diseases and climate adaptation and its policy implications. It concludes with a recommendation and the way forward.

Climate describes the average day-to-day weather, including seasonal extremes and variations, for a specific location or region. On the other hand, climate change is a long term shift or alteration in the climate of a specific location, region, or the entire globe. The shift is measured by changes in some or all of the features associated with average weather, such as temperature, wind patterns, and precipitation. While climate change predictions suggest that there may be an increase in extreme weather events, careful attention must also be given to the more subtle, annual and within season variability in rainfall and temperature patterns. There is however, an important distinction between changes due to seasonality and those due to climate change. Seasonality establishes rhythms and provides indications of when specific actions need to be taken; for example, seasonality determines when to plant, when to celebrate, when households will have sufficient food and when it will be easiest to manage health concerns. These fluctuations must be accounted for to understand what external factors regulate community actions, beliefs and behaviour. Climate change however, involves unexpected or unforeseen changes in weather patterns that have a range of livelihood consequences. Changes in weather patterns may be extreme, such as a cyclone or hurricane, while other changes may progress over longer periods of time, such as periods of drought and/or an increase in temperature over several years.

Global climate changes, largely a result of ozone depletion, are caused by human activities that release carbon dioxide and other greenhouse gases that trap heat within the atmosphere. As the concentration of these gases in the atmosphere increases, climate models project that the average surface temperature will rise by 1.1°C to 6.4 °C in the 21st Century, with extremes potentially occurring beyond this range ((IPCC WGII, 2007). These changes are likely to have significant impacts on the fundamental determinants of human health, most notably on the ecosystems, and these impacts will be added to existing health burdens. There is important evidence to show that climate change and climate variability affect the availability of fresh water, food quantity and quality, as well as the occurrence and distribution of some infectious diseases (WHO, 2008).

The major impacts of climate change include severe floods, frequent and prolonged droughts, reduced water supply, decline in crop and livestock yields, rising sea levels and an increase in vector and water-borne diseases (Hunter, 2003). Heavy rains, floods, drought and mudslides in Africa have culminated into food shortages and health disorders. Drought themselves have caused ill health due to lack of nutrition and infectious diseases and scarcity of clean and safe water. Malnutrition much of which is caused by periodic drought is responsible for an annual 3.5 million deaths of children under 5-year of age globally. Millions of people face further starvation due to a combination of climate change impacts, including crop failure, loss of livestock, lower

water availability and quality. In East Africa, floods and heavy rains have been associated with epidemics of cholera, malaria, and Rift Valley fever (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5604a3.htm>) in eastern Africa. These extremes and unpredictable weather patterns are threatening to undermine the development efforts of the affected countries.

In May 2008, the World Health Assembly (WHA) passed a resolution calling for a stronger commitment of Member States and the WHO to protect health from climate change (www.who.int/globalchange/climate/EB_CChealth_resolution/en/index.html). In response to the WHA resolution, WHO convened a global consultation of public health researchers, practitioners, representatives of UN and other agencies, and donors, to respond to this request. The findings of this consultation included, among others, that research on climate change and health is within the overall context of improving global health, and health equity; that improved risk assessment is necessary to inform decision makers on health impacts from climate change (and their linkages with impacts in other sectors) locally as well as internationally; and, that the necessary research requires engagement of policy actors and other stakeholders in a process to update and adapt priorities, mobilize resources and build interdisciplinary research capacity.

Climate change in Tanzania

Tanzania has been experiencing real and visible impacts of climate change. The Initial National Communication (INC, 2003) has reported that the mean annual temperatures in Tanzania will increase by 2.1⁰C in the northern parts to 4⁰C in the central and southern parts of the country by 2100. The increase will markedly be observed particularly during the cool months. In terms of precipitation, an annual increase by 10% is expected by 2100. Climate projections indicate that northern and southern parts of the country would experience an increase in rainfall ranging from 5-45% and that most parts of the country might experience a decrease in rainfall of 10-15% (Mwandosya et al., 1998). During the past 30 years, there has been a steady increase in temperature, adversely affecting almost all sectors of the economy. Several droughts have been recurrent while water levels in Lakes Victoria and Tanganyika have dropped significantly. There has been a dramatic recession of seven kilometres of Lake Rukwa in the past 50 years. These accelerating impacts threaten the lives and health of most of the population. A similar phenomenon has been observed with Lake Manyara.

Mount Kilimanjaro, the highest mountain in Africa, is undergoing rapid transformation. The snow-capped mountain is losing its 11,700 year old glacial top at an astounding rate. About 80% of glaciers on the mountain have been lost since 1912. It is expected that within the next 10-20 years, the summit will be bare (Thompson *et al.* 2007). The fluctuation in flow, combined with changing climate, place the mountain communities at high risk of malnutrition, vector-borne diseases (Smith *et al.* 2004), diarrhoeal diseases and other environmental health effects attributable to climate change.

Mt. Kilimanjaro has fragile ecosystems that are important as source of freshwater, repositories of biological diversity, popular destination for recreation and tourism and area for important cultural diversity, knowledge and heritage. The relationship between glacial melt, in the Kilimanjaro region's hydrological cycle, social, behavioural, and economic interplay, and the

associated health consequences is complex. Climate change-related impacts on mountain ecosystems are likely to affect population health by creating favourable conditions for disease vectors, forest fires, heavy snowfalls, major storms, floods and droughts (Ebi et al., 2007).

Impacts of climate change

The impacts of climate change are global and affect all nations and peoples. Yet the most vulnerable are the poor and marginalized people from developing countries who depend most directly on their ecosystems for survival and, because of poverty, have the least capacity to adapt to the rapid changes that are affecting their environment (WHO, 2008). These include the poor who do not have access to adequate safe water, those who lack access to adequate sanitation (www.thelancet.com), those who lack access to land, credit or knowledge, including women and children and other vulnerable groups, and those who live in areas with declining biodiversity and food production capacities.

There is an increasing recognition of the pervasive effects that climate change will have on the human well-being. Changes in temperature and precipitation resulting in changes in soil moisture, increases in sea level and more extreme weather events, such as floods and droughts are among the most cited impacts of global climate change (IPCC, 2001). These long-term, human-induced changes will in turn affect natural climate variability and inevitably influence social, environmental and economic well-being.

Increased weather variability may lead to less predictability in crop and livestock production, thereby threatening the well-being of those dependants on rainfall and the land for their livelihoods (Paavola, 2004). Climate change may affect health outcomes and food utilisation with additional malnutrition consequences. Populations in water-scarce regions are likely to face decreased water availability, with implications for the consumption of safe food and drinking water. Flooding and increased precipitation are likely to contribute to increased incidence of infectious diseases. The risk of emerging zoonoses may increase due to changes and survival of pathogens in the environment, changes in migration pathways, carriers and vectors and changes in the natural ecosystems.

The impacts of the slower changes are subtle, however, their impacts can be devastating to the health and livelihoods of communities that depend on climate conditions and the health of the land for their livelihoods (Yamin et al., 2005; Ziervogel et al., 2006). The people of Tanzania are however, exposed to climate change, directly through changing weather patterns and indirectly through changes in water, air, food quality and quantity, ecosystems, agriculture and economies. Despite the size and vulnerability of these populations, little is known about climate-related environmental and ecological effects and their associated impact on human health.

The causal chains through which climate variability and extreme weather influence human nutrition are complex and involve different pathways (regional water scarcity, salinisation of agricultural lands, destruction of crops through flood events, disruption of food logistics through disasters, and increased burden of plant infectious diseases or pests). Both acute and chronic nutritional problems are associated with climate variability and change. The effects of drought on health include deaths, malnutrition (undernutrition, protein-energy malnutrition and/or

micronutrient deficiencies), infectious diseases and respiratory diseases. Drought diminishes dietary diversity and reduces overall food consumption, and may therefore lead to micronutrient deficiencies. A study in southern Africa suggests that HIV/AIDS amplifies the effect of drought on nutrition (Mason et al., 2005). Malnutrition increases the risk both of acquiring and of dying from an infectious disease. Drought and the consequent loss of livelihoods is also a major trigger for population movements, particularly rural to urban migration. Population displacement can lead to increases in communicable diseases and poor nutritional status resulting from overcrowding, and a lack of safe water, food and shelter (del Ninno and Lundberg, 2005)

Climate change on health sector

Climate change can affect human health and well-being through a variety of mechanisms. Climate change can adversely impact the availability of water supplies, the efficiency of local sewerage systems, and food security (Menne et al., 2002). The distribution and seasonal transmission of several vector- or water-borne infectious diseases may also be affected by climate change. This is because, similar to adaptations that people make to their changing environment, infectious disease agents also adjust to their changing environment. Climate change can also result in direct injury and loss of life. For instance, violent weather can destroy shelter, contaminate water supplies, cripple crop and livestock production, tear apart existing health and other service infrastructures including roads. This will ultimately increase the existing burden of disease.

The pathogens that cause disease are in a state of perpetual adaptation, which can lead to the emergence of 'new' diseases or the spread of known diseases to previously unaffected areas. Diseases that experience a marked change in distribution, incidence and/or behaviour are often referred to as 'emerging or re-emerging diseases'. Factors that lead to the adaptation of infectious agents are complex and dynamic, ranging from deforestation, irrigation, species competition, human and animal migration patterns, drug resistance and changing vector lifecycle due to variations in temperature and rainfall (McMichael & Haines, 1997; Patz & Kovats, 2002; Patz et al., 2005)

Vulnerability, poverty and disease are tangled in a complex set of socio-economic and environmental conditions that can create heightened susceptibility to illness among certain individuals within a community. Understanding the determinants of health, beyond exposure to parasites and viruses, is fundamental to understanding how communities and individuals adapt to avoid risk and illness. Vulnerability is also tightly linked to inequity with respect to access to resources, decision-making power and capacity to cope. The continued prevalence of illness and vulnerability stems itself in part in the continued inequality within and between households, communities and countries (Farmer, 2001). Inequality affects vulnerability directly by constraining the options available to households and individuals when faced with external shocks, and indirectly through its various links to poverty. Factors such as the ability to mitigate increased vulnerability associated with illness, access to timely diagnosis and care, and access to adequate nutrition all play a role in managing vulnerability and disease progression. These factors are in turn affected by behavioural and societal norms, such as the ability to control resources needed for health-seeking and protection behaviour and the perception that specific symptoms merit an immediate investment of time and resources (Hartigan, 1999).

Climate change associated infectious diseases

Predicted changes in climate and climate impacts will have direct and indirect impacts on human health. Warming is predicted to increase the incidence of vector-borne diseases such as malaria, Rift Valley fever, schistosomiasis and trypanosomiasis in Tanzania. The increased frequency of droughts and flooding is in turn likely to increase the frequency and magnitude of epidemics of water-borne diseases such as typhoid and cholera, as well as to influence the incidence of mosquito-borne diseases such as malaria and Rift Valley fever. There are also intimate connections between nutritional status and health. In general, malnutrition and food shortages will increase morbidity and mortality related to infectious diseases. Finally, warming will aggravate the impacts of air pollution on respiratory illnesses which already kill as many people as malaria and more than diarrhoeal diseases (see IPCC, 2001; McMichael et al., 1996; Patz et al., 2002).

It has long been known that infectious diseases are indigenous to one or another part of the globe and can be spread. Statistics available indicate that global climate change was not responsible for spread of infectious diseases in the past. More likely they spread as a result of human social and behavioural change. Nevertheless, spread of arthropod-borne diseases and zoonoses is apt to occur with climate change (Shorpe, 1992). These are diseases transmitted by mosquitoes, sand flies, midges, and ticks. Climate change may also affect diseases spread by snails or by water, such as schistosomiasis, cholera and typhoid. In recent years, climate change has been associated with emerging and re-emerging zoonotic diseases.

The infections that will spread with climate change have some commonalities (Shope, 1991). They are focal, and their distribution is limited by the ecology of their reservoir, be it arthropod, snail, or water. They usually have a two- or three-host life cycle, meaning that in addition to infecting people, they infect a vector and frequently also a wild vertebrate animal host. Either the vector or the host, or both, are the reservoir. The range of the reservoir is delineated by temperature and sometimes water. In order to survive global climate change (and some of these infectious agents will not survive) the agents will need to have reservoirs that will survive; they will probably survive by moving in areas where a temperature range is ecologically permissive. If the agent and reservoir are successful in the newly warmer climate, the agent can be expected to multiply more rapidly, and if the reservoir is an arthropod or snail, it too will develop more rapidly (it may also have a shorter life). It is obvious that the reservoir must survive the change, the agent must be able to move if the reservoir is translocated, and the reservoir must be able to adapt to conditions in the new ecologic zone.

Among the diseases that have been predicted to be climate change related in Tanzania include malaria, RVF, schistosomiasis, cholera, typhoid and meningitis. This chapter will illustrate how these diseases may spread, and it will suggest how they may extend their geographic range and cause more serious human illness than currently encountered.

Schistosomiasis

Schistosomiasis is a parasitic disease caused by trematodes of three major species, *Schistosoma mansoni*, *S. haematobium*, and *S. japonicum*. The disease afflicts about 600,000,000 people in 79

countries of Africa, South America, and eastern Asia (Iarotski & Davis, 1981). Infections by *S. mansoni* and *S. haematobium* are prevalent in Tanzania. The life cycle of the parasite is complex involving snails, water, and human beings. The cycle is susceptible to environmental change, especially in water-associated stages. The snail hosts of schistosomes differ for each of the major species of parasite. The host of *S. haematobium* is the genus *Bulinus*, that of *S. mansoni* is *Biomphalaria*. The ecology of each genus of the parasite and snail differs, but some generalities hold. A major determinant of schistosome distribution is the distribution of the snail host. Snail populations are dependent on temperature, water, and water currents. Studies have established that ambient temperature is an important limiting factor of the survival of snails and of the shedding of cercariae (Ijima & Sugiura, 1962).

Aquatic birds have been implicated in the distribution of *Biomphalaria* and *Bulinus* snails to new areas. This accidental airborne transport is very effective in seeding new sites (Burch, 1975). In addition, these snails are hermaphroditic in nature and can self-fertilize and increase in numbers rapidly, once transported. Thus, the major question associated with global climate change is not how the snail will be transported and established, but rather, whether the temperature, water, and other conditions to support the snail and the schistosome parasite are adequate. If the temperature in the tropics of Africa rises sufficiently, it is likely that some of the present foci of schistosomiasis will be too hot to support the parasite. Areas of Africa on the east and west coasts already have high temperatures, and it has been suggested that this is the reason why *Biomphalaria* has not colonized these zones (Sturrock, 1965). On the other hand, other areas in highlands, now too cold to support the host snails, can be expected in the future to be favourable ecologically for schistosomiasis.

Rift Valley Fever

Rift Valley fever is a disease with a track record of appearing in 1977 in epidemic form in Egypt where no trace of prior infection could be found, and again in 1987 in Mauritania of causing an epidemic where it had previously caused only inapparent infections. These two epidemics accompanied ecological change following the completion of dams; such ecological change may differ from that of global climate change, nevertheless, this dramatic disease is a prime candidate to be affected by global climate change.

Rift Valley fever is caused by a virus in the family Bunyaviridae, transmitted by mosquitoes and also through inhalation of aerosol from the infected blood and afterbirths of sick animals. The disease derives its name from the historic epizootics that occurred periodically after 1910 in sheep and cattle in Africa's Rift Valley that extends from South Africa through Tanzania, Kenya, Uganda, and Sudan. In East and South Africa, the disease appears in epizootics in the grasslands. These outbreaks follow heavy rains and the consequent emergence of large numbers of *Aedes* and *Culex* mosquitoes.

The reservoir of the Rift Valley fever virus in sub-Saharan Africa has been a mystery. After heavy rains, epizootics start, involving sheep and cattle pastured in the grasslands. The rains flood large depressions, called "dambos" and from these depressions hatch massive number of *Aedes* mosquitoes (Linthicum et al., 1985). The most likely explanation for this finding is that the virus is in the mosquito egg and is passaged transovarially to the emerging mosquito. The mosquito itself appears to be the reservoir and, since rain is needed to hatch the eggs and heavy

rain only occurs every few years, this phenomenon may explain the long periods between epizootics.

Malaria

Malaria is by far the most important vector-borne disease causing high morbidity and mortality in Tanzania. The endemicity and pattern of malaria transmission is focal and varies from place to place depending on many factors including climate and topography. Until recently, malaria has been a common disease in low altitude rural areas of Tanzania (Clyde, 1967). However, due to changes in socio-economic, environmental, and vector related factors, the disease is now common in previously malaria-free areas. A marked increase in the incidence of malaria among a population in which the disease was previously unknown or a seasonal increase of clinical malaria in an area where the disease is endemic has been reported in a number of districts of Tanzania. To-date over 8.6% of 34,569,232 (2.973 million) of the people in Tanzania live in malaria unstable areas prone to epidemics, with high mortality during the rainy season (Ministry of Health, 2000 unpublished report).

Until recently, malaria has been reported from highland areas of Muheza (Clyde *et al.*, 1958; Matola *et al.*, 1987); Babati (Mboera & Kamugisha, 1996); Hanang (Clyde, 1967; Irare & Mkufya, 1984); Mbulu (Clyde, 1967); Ngorongoro (Alilio *et al.*, 1995); Mpwapwa (F. Molteni *et al.*, 2002); Muleba (Garay, 1998), Sumbawanga and Lushoto (Clyde, 1967; Salum *et al.*, 1999; Mboera *et al.*, 1999; Bødker *et al.*, 2000).

Factors influencing malaria epidemics in Tanzania include environmental changes. Malaria epidemics in the Usambara and Mbulu Mountains are likely to have been imported from the lowlands. Moreover, environmental changes that result from global and local processes are likely to have had some effects on vectors of malaria in these areas. Matola *et al.* (1987) had already shown that vegetation clearing that occurred in the East Usambara Mountains played a significant role in the increase of malaria transmission in the area. Until recent years the Western Usambara Mountains were covered by rain forests. To-date, only few trees remain in villages such as Ubiri, where the recent outbreak was reported. As the environment has such a profound effect on the ecology of malaria vectors and malaria transmission, clearing of forests has favoured breeding of *An. gambiae s.l.* The forest clearing practices often leave large depressions, which can easily fill up with rainwater, reduced canopy cover, which allow illumination and become semi-permanent breeding sites.

The reason for the first malaria outbreaks in Usambara Mountains was considered to be the availability of sites for vector breeding when rains have been prolonged into the warm seasons. Moreover, labourers visiting the mountain villages from sisal estates on the plains below are likely to have introduced malaria parasites, and *Anopheles* mosquitoes maintained transmission for a few months thereafter. Therefore, environmental changes and human activities are likely to have been responsible for the increase in the population density of *An. gambiae*, contributing to the enhanced malaria transmission in both the Western and Eastern Usambara Mountains.

A common characteristic of many affected areas prior to the epidemics is that they had suffered a recent period of drought and were recognised as having serious food security problems (WHO, 2001). Moreover, epidemics following drought periods appear to catch health services unawares

and the result is often high fatality rates. Further support for the link between food security issues and epidemic malaria comes from the study of a devastating epidemic recorded in Mbulu District in 1942 (Clyde, 1967) and Muleba District (Garay, 1998). The risk of mortality from malaria during the Muleba epidemic was observed to be 7 times higher in malnourished than well nourished children giving support to the view that the consequences of epidemic malaria are most intensely felt in communities where food entitlement is constrained.

Population migration in Ngorongoro district is common among pastoralists. Such movements are usually initiated mainly by three factors: (i) tribal conflicts and fighting between the Maasai and minority tribes force people to flee their villages; (ii) movements caused by other epidemics, particularly meningitis and dysentery which have often caused some communities to run away from their homes; and (iii) climate variability. Usually, during the dry season search for greener pastures entails movement with animals to malaria endemic areas around lakes and rivers within and outside the district (Alilio *et al.*, 1995).

Factors behind several malaria epidemics in various districts of Tanzania have not been studied in detail. Findings of a recent study (Mboera *et al.*, 1999) have suggested that a delay in seeking medical care has contributed highly to loss of life. Such delays have been aggravated by destruction of the infrastructure as observed in Muleba district during the 1978 malaria epidemics.

Various studies have shown malaria epidemics may be linked to environmental changes and increased mean rainfall and ambient temperatures. A wave of rain-related malaria epidemics swept over East Africa after the torrential rains which followed the 1997/1998 *El Niño* event (Brown *et al.*, 1998; Garay, 1998; Lindblade *et al.*, 1999; Kilian *et al.*, 1999). The introduction and increase of malaria incidence in the Western and Eastern Usambara Mountains has been a result of ecological changes that have favoured an increase in vector densities. Socio-economic activities and deforestation might have all resulted in a rise in vector population densities that appears to have enabled increase in malaria in the area. The current upper height limit for malaria in the African highlands is difficult to define precisely, and is likely to rise. In many countries this boundary was thought to occur around 2000m; for example, in Burundi, Ethiopia, Kenya, Morocco and Rwanda. Malaria epidemics have occasionally been reported at higher altitudes (up to 2550m) but are rare. In other parts of Africa the upper limit is slightly lower: at around 1700-1800m in the Democratic Republic of Congo, and at 1200m in Zimbabwe. Generally we considered that areas higher than 1500m have little or no malaria.

Most malaria epidemics in the African highlands are due to *Plasmodium falciparum*, the most lethal and dominant species found in the continent. In most highland areas, local communities have little or no immunity against malarial parasites and thus the disease affects both adults and children. This contrasts with the lowlands where immunity is high among most adults and malaria morbidity is confined largely to young children and primigravidae. As a consequence of the low immunity in the highland communities, epidemics in the mountains are characterized by high morbidity and mortality among both children and adults. The highlands are thus areas of unstable malaria patterns primarily because of the low and fluctuating levels of transmission experienced by local communities. Consequently many of these semi-immune populations experience severe outbreaks every few years.

The impact of climate variability and malaria can be explained by the fact that as altitude increases temperature declines and both the development and survival of the mosquito vector and parasite are critically dependent on the ambient temperature. As the temperature drops so does the risk of infection, and there is a typical threshold below which transmission ceases. Below 16°C the aquatic stages of tropical anophelines fail to develop (REF) or breed (REF), while *P. falciparum* fails to develop between 16°C and 19°C (REF). However, the major vectors of malaria can avoid these extreme temperatures by resting in more favourable microclimates; for example, inside occupied houses the temperatures can be 3-5°C warmer than outside (REF). Importantly, inhabited houses can be warm enough to allow the parasite to develop, even if it is too cold for development in an unoccupied house or outside. Moreover, in an occupied house the relative humidity may stabilize at around 60%, which favours mosquito survival; outside relative humidities may vary considerably (12-89%).

Rainfall in the African highlands can vary greatly from year to year. The catastrophic malaria epidemic in Ethiopia in 1958 was associated with unusually high rainfall over an extended period as well as with elevated temperatures and relative humidity (REF). Also the 1940 outbreak in Nairobi, Kenya, resulted from heavy rains, which followed 2 years of low rainfall (REF). One of the major causes of the variation in annual rainfall in Africa is the *El Nino*-Southern Oscillation (ENSO), a meteorological phenomenon that occurs every 2-10 years and tends to exaggerate the extremes of climate in specific regions of the world.

Both the epidemics of 1999 and 2001 in Mpwapwa did not take place during the ENSO years, suggesting that there are other more subtle influences on the transmission of malaria. Although sharp increases in the inter-annual rainfall and temperature, or both, may precipitate epidemics, they can also erupt in years that appear climatically similar in previous years. Thus while it may be possible to predict the physical location of epidemic prone areas, identifying when an epidemic is likely to occur may be more problematic (Lindsay & Maarten, 1998).

There is, therefore, an urgent need to explore the basic malaria epidemic predictive factors and establish a sustainable surveillance system. It is important to investigate and determine factors, related to both the community and environment that can be utilised to identify groups at risk and risk factors that might suggest detection of malaria epidemics in Tanzania. Measurements of important indices relating to malaria transmission are essential in the epidemiological assessment and control of the epidemics. The indices quantify the potential risk of malaria infections and also describe numerically the dynamics of transmission. It is essential to understand the factors that cause increased vector densities and hence the transmission of malaria to prevent its epidemics, as well as to serve as a basis for effective control. At a more sophisticated level, satellite data on vegetation and humidity could be used to predict conditions favourable for mosquito breeding.

Cholera and other diarrhoeal diseases

The combination of higher temperatures, prolonged droughts and floods coupled with scarce water resources and poor sanitation make countries in Eastern, Central and southern Africa vulnerable to outbreaks of cholera and other waterborne diarrhoeal diseases.

The recent outbreaks of 2008-9 of cholera in some countries have affected thousands of people in Zimbabwe (the worst affected), South Africa, Mozambique, Malawi, Angola, Tanzania and Zambia. The outbreaks are partly due to poor sanitation, water shortages, changes in rainfall and temperatures.

HIV/AIDS

The current excess of literature on climate change impacts has so far very little mention of HIV/AIDS. Identifying the interrelations between climate and HIV/AIDS seem farfetched, at first glance. However, chronically poor environmental conditions (environmental degradation) or environmental stress (extreme climate events) can create conditions germane to the development and spread of infectious diseases, through migration, food shortages, and most relevant for the case of HIV/AIDS, forcing people to indulge in activities or behaviours for survival that they would have otherwise not have engaged in. In many countries in East, Central and Southern Africa, HIV/AIDS has had a devastating impact leading to a loss of working age adults and leaving a large and growing number of orphans who are vulnerable to food insecurity and malnutrition, illness and death. HIV/AIDS seriously weakens the capacity of communities to withstand the effects of climate change.

Meningitis

Countries within the 'Meningitis Belt' in semi-arid sub-Saharan Africa experience the highest endemicity and epidemic frequency of meningococcal meningitis in Africa, although other areas in the Rift Valley, the Great Lakes, and southern Africa are also affected. The spatial distribution, intensity and seasonality of meningococcal (epidemic) meningitis appear to be strongly linked to climatic and environmental factors, particularly drought. Climate plays an important part in the interannual variability in transmission, including the timing of the seasonal onset of the disease. The geographical distribution of meningitis has expanded in West Africa in recent years, which may be attributable to environmental change driven by both changes in land use and regional climate change (Confalonieri et al., 2007).

Climate change and other health problems

The public health effects of global warming in Africa are related to the rising temperatures, severe water shortages and extreme events such as frequent and severe droughts, floods and storms. Climate change has impact on agriculture and food security; water supply, occurrence of extreme natural hazards, mobility and occurrence of infectious diseases; all of which have consequences on health.

Climate and food security

Increased intensity and frequency of drought and flooding, altered hydrological cycles and precipitation variance have implications for future food availability. A report from the Food and Agriculture Organization (FAO) states that agricultural productivity in developing countries may decline by between nine and 21 percent by mid-century due to climate change (FAO, 2007). Another report from the International Food Policy Research Institute (IFPRI) says growing population and loss of production due to climate change will lead to increases in food prices. Higher temperatures, declining rainfall and water scarcity and floods in the East Africa are impacting negatively on food production resulting in food insecurity. Decreased agricultural

productivity in the coming years could lead to hunger and famine in some communities severely affected by climate change. This would in turn increase illness and death of vulnerable groups including women and children (Shongwe, 2009).

Water supply

Most of the climate change impacts in Africa are associated with rainfall variability and scarcity of water resources. The dramatic reductions of the snow and glaciers of Mount Kilimanjaro in Tanzania, Ruwenzori in Uganda and Mount Kenya in Kenya is a result of global warming. These glaciers could vanish in the next fifteen years. The glaciers of Mt. Kilimanjaro act as frozen water reservoir and supply the towns and communities around the mountain. Several rivers around Moshi town near Mt. Kilimanjaro are drying up due to global warming. This is already impacting negatively on production of coffee, bananas, maize and other crops (Agrawala et al., 2003; Shongwe, 2009).

Water resources have been decreasing over time as a result of persistent droughts and land use patterns. Climate change will exacerbate water shortages resulting in reduction of hydro power and increasing the incidence of waterborne diseases. The impact of severe water shortages in many eastern and southern African countries will be greatest in arid and semiarid areas. Climate change and global warming are already impacting negatively on hydro power generation in a number of countries including Tanzania, and therefore resulting in frequent power outages (Funk et al., 2005; WWF, 2006).

Extreme events and natural hazards

Climate change has increased the frequency and severity of extreme events such as floods, droughts and storms causing deaths, injuries, famines, disease outbreaks, psychological disorders and population displacements. In recent years the Maputo-Beira region of Mozambique has experienced frequent flooding resulting in injuries, deaths and displacement of thousands of people. Extreme events such as heat waves could lead to an increase in the incidence of heat stress, respiratory and cardiovascular diseases.

Urbanization

The Africa's urbanization rate of 4.5% per year is reported to be the highest in the world. In the eastern and southern African region, major cities such as Dar es Salaam, Kampala, Luanda, Nairobi and Maputo are the fastest growing cities. The rapid urbanization poses challenges for infrastructure and services. Limited access to water, electricity and sanitation could increase vulnerability to outbreaks of waterborne diseases including cholera (Shongwe, 2009).

Poverty

In most countries in Africa, high levels of poverty and dependence on subsistence farming by the majority of the population increases vulnerability to climate change. Poverty is also associated with deforestation and environmental degradation which predisposes the population to famine, hunger, malnutrition and infectious diseases.

Air pollution

Air pollution from greenhouse gases (GHGs) is predominantly from the manufacturing sector but increasingly the transport sector (due to old motor vehicles) is being recognized as a major polluter particularly in the big African cities. Household energy including firewood, charcoal and kerosene use) and land use clearing are the other important contributors to air pollution.

Climate change and Health systems

Climate change is emerging as a major threat to health and adding pressure on public health systems, especially in Africa. In recent days, heavy rains accompanied with strong winds have left 4448 people displaced and without food in Muleba District. The hailstorm destroyed 1644 hectares of land which contained banana plants and 127 hectares of maize plants leaving people without food. Infrastructures including primary and secondary school buildings, mosque and church were destroyed (Daily News, November 25, 2009).

Climate change can result in damage to sanitation infrastructure resulting in the spread of disease or threatening a community's ability to maintain its economy, geographic location, or cultural-tradition leading to mental stress.

A changing climate can increase the frequency, intensity or duration of extreme weather conditions which increases risks for vulnerable populations and communities in areas exposed to natural hazards.

In many scenarios, there is increased in demands on health care services. Extra pressure is placed on health care services by increased demands resulting from weather-related natural hazards such as floods. Disruptions of social networks are not uncommon. Power outages can occur as a result of extreme weather-related events, which can affect our ability to communicate during emergencies. There is interference with livelihoods such that people experience stress if their livelihoods and productivity are threatened, for example, farmers suffering crop failures and income losses due to droughts. Climate change can increase the number of extreme weather events which can damage buildings, roads, and other infrastructure. This causes trauma for people having to relocate, as occurred following the recent rains in Same district in northern Tanzania. Virtually all our infrastructures are designed for a specific climate, such as those related to food production, water management, energy production, storm sewer, drainage and sanitation systems, and housing and health infrastructures. Health risks can arise when any one of these systems fails or becomes compromised - as they may in a changing climate.

As an illustration, severe weather events can result in loss of income and productivity, relocation of people, increased stress for families, and higher costs for health care and social services.

Climate change vulnerability and adaptation in Tanzania

For many communities, adaptation to climate change has been a survival strategy that has been well-refined over time. Increasing variability and frequency of unusual weather events places the livelihoods of those most vulnerable to climate change at risk by testing their ability to adapt. Innovation, knowledge and coping strategies often exist within the fabric of social structures at the community level (Yamin et al., 2005).

Societies have adapted to past changes in climate, although some with much more difficulty than others. Enhanced capacity to adapt to the impacts of climate change on health can reduce the associated threats to human health and wellbeing. By generating and acquiring new knowledge or synthesizing existing knowledge on anticipated future climate change risks and their possible consequences, responses to these stresses can be faster, more efficient and effective. Better organizing institutions, processes and actions around present and anticipated health challenges across sectors and levels of decision-making can also help with preparedness. Ultimately, societies should be able to avoid, prepare for, and effectively respond to health impacts related to climate change. In addition, assessing possible climate impacts could be an opportunity for institutions and policy-makers to discuss how to do better development; to build individual, community and institutional capacity; and to improve response to certain health and environmental problems. The development and documentation of cases of adaptation to climate related health challenges, in both urban and rural contexts, would be an important contribution to ongoing efforts in Sub-Saharan Africa.

Those affected by climate change, however are not simply passive observers of their fate. For many communities, adaptation to climatic events has been a survival strategy that has been well-refined over time. Communities learn to adapt to the challenges presented to them, often made up of social, political, environmental and economic factors. Increasing variability and frequency of unusual weather events places the livelihoods of those most vulnerable to climatic events at risk by testing their ability to adapt. Innovation, knowledge and coping strategies often exist within the fabric of social structures at the community level (Yamin et al., 2005) Supporting community-led adaptation means putting communities' centre-stage in determining which vulnerabilities are addressed and how they are addressed. In order to understand the true implications of climate change on those most vulnerable, impacts must be viewed from within the context of their everyday lives.

Assessment of vulnerability and adaptation to climate change in various sectors in Tanzania form part of the Initial National Communication (INC). Currently, there are two disaster vulnerability assessment reports conducted in 2002 and 2003 which reveal the situation at the community level. The two assessments contain very valuable information which contributes to an increased understanding of the vulnerability to climate change in Tanzania. Among the major causes of the vulnerability at village, district and national levels include epidemics, drought, pest/vermin/plant diseases and floods.

Through the National Adaptation Programme of Action, various coping strategies have been identified. Those related to health are summarized below:

Table 1: Vulnerabilities and adaptation activities related to climate change impacts on health

Health problem	Vulnerability	Existing adaptation activities	Potential adaptation activities
Vector borne diseases;	<ol style="list-style-type: none"> 1. Emergency of highland malaria 2. Rift Valley Fever epidemic 3. More cases of schistosomiasis 	<ol style="list-style-type: none"> 1. Integrated Disease Surveillance and Response strategy is in place and operational to prevent, mitigate and respond to epidemics 	<ol style="list-style-type: none"> 1. Strengthen IDRS and other disease control programmes 2. Establish and strengthen community awareness programmes on disease

	<p>4. Increased rates of cholera and other diarrhoeal diseases</p> <p>5. Meningitis epidemics</p>	<p>2. Presence of Emergency Preparedness Unit that coordinate and manage all health related hazards which include epidemics</p>	<p>prevention</p> <p>3. Strengthen collaboration between the health sector and Tanzania Meteorological Agency</p> <p>4. Develop new and strengthen available Early Warning Systems and Emergency measures</p> <p>5. Strengthen health systems (human resources; medical supplies; equipment; finance)</p>
Malnutrition	Severe shortage of food and high incidence of malnutrition, especially to children		Establish and strengthen community awareness programmes on food security and malnutrition

Climate change related policies in Tanzania

Policy frameworks

There is no single policy document that is solely responsible for Climate Change in Tanzania. The National Environmental Management Act Policy of 1997 recognizes the importance of climate change. It calls for responsible ministries to put up measures to address climate change. The Minister responsible for environment is also mandated to issue guidelines in order to address climate change and its impacts as a result of global warming. Although the Policy has been in place for 12 years now, there are still the guidelines are yet to be developed.

Recognizing the adverse impacts of natural disasters and calamities such as floods, droughts, landslides, insect pests, and disease epidemics to the socio-economy of the country, the government created a Disaster Management Division under the Prime Ministers Office, to deal with these issues. Moreover, recently, a National Adaptation Programme of Action (NAPA) had been developed. NAPA is linked with other national development policies, goals, objectives, plans, strategies and programmes and supports/complements strategies and programmes of other multilateral environmental agreement that Tanzania is party. These include: the United Nations Convention to Combat Desertification (UNCCD), United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Vienna Convention on the Protection of Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer.

A number of strategies and action plans related to some of these conventions are in place (NAPA, 2007). These include the National Biodiversity Strategy and Action Plan (NBSAP), the National Action Programme (NAP), and the National Biosafety Framework (NBF). The National Environmental Policy (NEP) of 1997 provides a framework for mainstreaming environmental considerations into the decision making process in Tanzania. Though NEP does not pay explicit attention to climate change, the primary environmental issues brought forward include may of the concerns that would be addressed by non-regrets climate change adaptation measures. NEP

highlights the importance of integrating environmental management in several sectoral programmes and policies.

The National Forest Policy (NFP) of 1998 is another climate change related policy. One of the objectives of the NFP is to ensure ecosystems stability through conservation of forest biodiversity, water catchments, and soil fertility. The policy states that new forest reserve for conservation will be established in areas of high biodiversity value and that biodiversity conservation and management will be included in the management of plans for all protected forests.

The Reduced Emissions from Deforestation and Forest Degradation (REDD) initiative is among the recent efforts envisaged to play a significant role in climate change mitigation and adaptation (REDD, 2009). The legal framework in support of environmental management in Tanzania promote sustainable forest management and protection which are important for the implementation of REDD policy.

Coordination of Climate Change Issues

In accordance with the Environmental Management Act of 2004, all environmental management issues *inter alia* climate change are coordinated by the Vice President's Office. In line with this Act, the functions of the Division of Environment approved by the President on February 5, 2007, mandates the Division to coordinate all climate change issues including adaptation and mitigation.

The government has put in place a National Climate Change Steering Committee (NCCS) and the National Climate Change Technical Committee to oversee and guide the implementation of climate change activities in the country.

Conclusion and Recommendations

Schistosomiasis, and Rift Valley fever are only three examples of major human diseases that can be expected to be influenced by global climate change. There are experimental vaccines for dengue and Rift Valley fever, and drugs for treatment of schistosomiasis. We can combat all three diseases with environmental sanitation and health education. In spite of these measures, we have not been successful in controlling them and we can expect local and world changes in temperature and rainfall to make their control more difficult.

Fortunately, the changes will happen gradually and if we act now, we have time to learn more about the epidemiology and ecology of the vector-borne and zoonotic diseases. We also have time to devise better control and prevention strategies. These studies will require interdisciplinary research. The trend today in graduate education and in university and government research is to specialization, and in infectious diseases the trend is to specialization at the molecular level. This trend is laudable to a point; many of our solutions will require understanding at the molecular level. However, this particular problem will also require training in more general and interdisciplinary fields including field ecology, general medicine, epidemiology, forestry and botany, entomology, climatology, and zoology to name a few.

We should aim to devise better direct intervention measures for these diseases. We also need more information about transport of agents, modes of transmission, their reservoirs, and the effect of temperature, rainfall, and other climate-related parameters on the vectors, vertebrate hosts, and the agents of disease themselves. Studies of ecology at the periphery of the ranges of the agents and their reservoirs would be especially valuable. Such information could be used to predict more accurately which of the diseases to target as threats, and which will be less likely to spread and/or become more severe.

Attribution to current and future climate change related disease burdens is a challenge because the determinants of diseases are complex. The magnitude and factors affecting of climate change diseases among communities in Tanzania need to be better quantified. Research and information on the links between climate-change related diseases are necessary. It is only when the climate change issues are addressed adequately that developing countries like Tanzania would be able to make headway in the achievements of the development goals, including those contained in the National Strategy for Growth and Reduction of Poverty; Development Vision 2005; and MDG. MDG Number 6 and 7 deal with HIV/AIDS, Malaria and other diseases; and ensure Environmental Sustainability, respectively. These are among the MDGs that are directly related to food, health and climate.

Weather and climate forecasts and early warnings systems needs to be developed and implemented. Such systems can be used to provide information that enables and persuades people and organizations to protect themselves and their property, and thereby reduces the deaths, injury and damage caused by the hazards.

Through the contribution of modern meteorological and hydrological sciences and technology it is possible to provide communities threatened by potential climate disasters with information to instigate timely preventive action. Governmental organizations, local and national officials, emergency managers, local decision makers, the media, non-governmental organization need to create effective preparedness plans, warning systems, mitigation strategies and public education programmes. Global infectious disease control strategies include early diagnosis and prompt treatment and selective and sustainable measures, including vector control, early detection, and containment or prevention of epidemics. Local capacity building for basic and applied research is essential to allow regular assessment of diseases, particularly the ecological, social and economic determinants of diseases.

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