

Annex 7. Zambia case study

Background

The population of Zambia is estimated at roughly 13 million.²⁵ The country covers an area of 752,612 square kilometers and is landlocked, neighbored by 8 countries (Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia, Angola, and the Democratic Republic of Congo).

Any analysis for this country needs to take into account the effects of a high prevalence of HIV/AIDS (almost 17 times that of the global average), low life expectancy, continuously high infant mortality rates, high adult mortality, and a high proportion of poverty driven very much by the structure of the population, which has almost half dependent on those working. Over one-third of Zambia's population is concentrated in a few urban zones strung along the major transportation corridors. Over the years these provinces have been characterised by economic decline.²⁶ Residents of rural areas have worse outcomes on many of the health indicators in comparison to urban residents.

Zambia's vast size, varying climate (some roads are often impassable during the wet season), and increasingly difficult economic situation, negatively impact the ability of health services to reach the country's rural population.²⁷ In addition to economic and health disparities, politically, Zambia is currently undergoing a constitutional review process to address serious gaps in its constitution, such as the absence of protection for economic, social, children's, and women's rights. Once a middle-income country, Zambia began to slide into poverty in the 1970s when copper prices declined in world markets. The country is currently classified as a lower-middle-income country (\$1006 to \$3975). Although privatization of government-owned copper mines increased copper mining output and profitability, subsequently spurring economic growth, a high birth rate, high HIV/AIDS burden, and market-distorting agricultural policies have meant that Zambia's economic growth has not dramatically decreased the high poverty rates.²⁸ As such, the majority of Zambians do not have access to proper housing, quality health services, education, clean water, sanitation, or adequately balanced diets. Governance challenges in the Ministry of Health have also provoked the suspension of aid by The Global Fund to Fight AIDS as well as some major European donors.²⁹

The country's health plan recognizes that "Zambia is unlikely to meet most of its [Millennium Development Goals] ([MDGs]) by the target year of 2015".³⁰ Here, the need to deal with the extensive human resources for health crisis is identified as a major factor in improving the health sector's ability to improve its performance to meet the MDGs.

Zambia's health system is driven by the National Health Strategic Plan, of which the latest 2006 – 2010 version is the fourth of its kind.³⁰ The plan differs from those before it in that while it acknowledges a wide array of problems and issues that need to be attended to, it emphasizes the prioritization of specific intervention strategies and is explicitly framed by the objectives set out in the MDGs, as is evident in its title *"Towards attainment of the Millennium Development Goals (MDGs) and National Health Priorities"*.

The country's Human Resources for Health (HRH) Strategic Plan 2006 - 2010 recognizes that one of the major obstacles for Zambia to achieve the MDGs related to child and maternal health and combating priority diseases—including malaria and HIV/AIDS—is the shortage of HRH.³⁰ The main solution to this

HRH problem is identified as residing in two key areas: primarily, in improving the conditions of service and the workplace environment, in order to better attract HRH; and secondly, in the plan to deploy and use staff more efficiently and effectively through improved HR management and practices. The fundamental HRH problems are identified as:

- A public sector functioning with only half of the required health workforce
- High levels of internal and external brain drain
- Increased levels of attrition through deaths and resignations, and
- Imbalances in the distribution of health workers between rural and urban areas (MoH, 2005b)

The HRH Strategic Plan appears to be very comprehensive, covering the current scope of active initiatives, objectives, and strategies to solve the sector's problems, a consideration of risks, and the resources needed for implementation, while also putting in place mechanisms for monitoring and evaluation. There is, however, little consideration of the supply side, in terms of the training required to scale-up the workforce, nor is there specific mention of MLHWs. Although information on HRH and the health system is a bit dated, and is not in all cases presented at the level of detail required for a situational analysis of MLHWs, at least the information presents us with the demand side data. The Zambian HRH Strategic Plan lacks in presenting concurrent supply side information. Thus, in order for MLHWs to be more effectively integrated into the Zambian health system, more focus should be placed on gathering and coordinating information on their training. This will assist in more accurate and realistic planning for the specificities of the Zambian health sector.

The defining feature of the Zambian health sector is that in terms of its organizational structure, its health service delivery is decentralized, so that key management responsibilities and resources reside at the district level.³⁰ The health system is predominantly public. Health facilities, in general, are provided by the government, with the remainder supplied by missions and private institutions (a total of just under 1500 institutions).

Situational Analysis

MLHWs in Zambia

The latest available data put the entire health workforce at 23,176, with support staff clearly forming the majority (11,003), followed by nurses (6096), midwives (2,273), and then clinical officers (1,161). If we disregard the support staff, this would mean that clinical officers constitute roughly 10% of the HRH in Zambia.

Table 14: Current staff levels versus recommended establishment, Zambia

Staff category	Current staff levels	Recommended establishment	Shortfall
Doctors	646	2,300	1,654
Nurses	6,096	16,732	10,636
Midwives	2,273	5,600	3,327
Clinical Officers	1,161	4,000	2,839
Pharmacists	24	42	18
Pharmacy Technician	84	120	36
Lab. Scientist	25	50	25
Lab Technologist	100	210	110
Lab Technician	292	1,300	1,008
EHO	53	120	67
EH Technologist	32	220	188
EH Technician	718	1,300	582
Dental Surgeon	14	33	19
Dental Technologist	40	300	260
Dental Therapist	2	300	298
Physiotherapist Deg	0	50	50
Physiotherapist Dip	86	250	164
Radiologists	3	33	30
Radiographers	139	200	61
Paramedics	320	6,000	5,680
Nutritionist	65	200	135
Support Staff	11,003	10,000	-1,003
Total	23,176	49,360	26,184
Source: MoH Zambia, MoHHRIS database 2004/5			

Although, no specific data on the rural/urban split of these health care workers are provided, the plan does disaggregate staff information by provinces. Here, it is shown that staff distribution is skewed in favor of urban areas, such as Lusaka in comparison to the more rural Northern Province. The poorest provinces as identified as Northern, Northwestern, Central and Eastern and these are all shown to have the most severe staffing shortages.

Although there are not very specific data on all of the MLHWs in Zambia, their Human Resources for Health Strategic Plan (2006 – 2010) does supply information on Clinical Officers (COs). At the moment, the main problem hampering the planning for MLHWs is the lack of information on the numbers, levels and distribution of training output of these cadres. In terms of retention, the Zambian government appears to be better placed in comparison to Tanzania and Mozambique in that they have devised a specific scheme to retain health workers. In 2003, in an attempt to deal more robustly with the issues of staff shortages and maldistribution, the Zambian government, in partnership with the Royal Netherlands government, embarked on the pilot Zambian Health Workers Retention Scheme (ZHWRS). Although this pilot deals with the retention and support specifically of doctors in rural areas of Zambia, the intention is to extend this to the entire health workforce. It is useful to consider here, as it illustrates the main problems of attrition in the Zambian health sector, which although not uniformly translating into the same experiences for MLHWs, must to some extent reflect the difficulties for the retention of these cadres as well.

The scheme includes a financial incentive (hardship allowance), school fees, a loans facility for a car or a house, and assistance with post-graduate training at the end of a contract that usually spans 3 years.³¹

At the mid-term review of this scheme, provisional results were very favorable, indicating that this could be a successful scheme to roll out to similar health care worker cadres with similar success for greater retention in rural areas.

Table 15: Staff distribution by province, Zambia

Province	Doctor	Clinical Officer	Registered Midwife	Registered Nurse	Enrolled Midwife	Enrolled Nurse	Pharm Staff	Lab Staff	Paramedic staff	Envir. Health Tech	Total
Central	35	132	60	84	242	388	9	37	46	93	1126
Copperbelt	202	187	126	357	505	1160	33	110	140	79	2899
Eastern	29	138	15	103	159	506	8	28	38	95	1119
Luapula	15	65	10	36	39	274	5	25	21	55	545
Lusaka	256	212	129	421	305	1014	5	103	162	58	2665
North Western	21	55	5	38	41	281	7	18	20	73	559
Northern	22	107	18	94	149	320	5	30	35	90	870
Southern	38	174	31	117	359	663	16	48	53	126	1625
Western	28	91	16	38	64	350	4	18	30	81	720
Grand Total	646	1161	410	1288	1863	4956	92	417	545	750	12128

Source: MoH Zambia (2005b: 10)

As indicated in the HRH Strategic Plan, attractive salary packages are also key in retention. Table 16 indicates the latest available data on remuneration packages across cadres. It illustrates the lower value placed on the retention of MLHWs, in that for instance, whereas the salary package for doctors includes a recruitment and retention amount of 755,688 Zambian Kwacha, there is no such item provided for in the CO salary package. Furthermore, in the case of doctors, allowances make up roughly 40% of the portion of their composite total, whereas allowances make up only 20% of the composite total package of COs.

The main (biggest amount of) mid-level health worker cadre in Zambia is the CO, sometimes interchangeably referred to as the Medical Licentiate, although this is not strictly correct.

Table 16: Composite monthly pay before tax of a sample of health workers, Zambia

Cadre	Gross monthly salary	Recruitment & retention	Commuted Overtime	Commuted Night Duty	Uniform upkeep	Housing Allowance	On call	Grand Total
Doctor	3,778,438	755,688				500,000	1,200,000	6,234,126
Pharmacist	3,072,188	614,438			35,000	400,000		4,121,626
Lab Scientist	2,687,500	537,500			35,000	400,000		3,660,000
Tutor	2,429,500					450,000		3,400,400
Senior Nurse & Paramedic	1,683,230	485,900	40,000	30,000	35,000	450,000		2,574,876
Nurse	1,141,770	336,646	40,000	30,000	35,000	250,000		1,496,770
Midwife	1,141,770		40,000	30,000	35,000	250,000		1,496,770
Clinical Officer	1,141,770		40,000	30,000	35,000	250,000		1,496,770
Lab technologist	1,141,770		40,000	30,000	35,000	250,000		1,496,770
Pharmacy Tech	1,141,770		40,000	30,000	35,000	250,000		1,426,770
Lab technician	981,354		40,000	30,000	35,000	150,000		1,236,354

Source: MoH (2005b: 13)

Whereas the former refers to a more basic MLHW, the latter has more advanced surgical and clinical medicine training and education. The CO cadre was originally instituted to fill the gap of medical

doctors, especially in primary care settings. Although they are still performing these roles, the part that they can play in HIV/AIDS care (specifically to take over ART provision) is increasingly being recognized. COs in Zambia could be classified as partial substitutes, as they perform only a prescribed and limited scope of tasks and health care services of doctors, and have to refer the more specialized tasks to doctors.¹⁰ Medical licentiates would come closer to the direct substitution classification, as they have a much wider scope of practice, and can practice independently in various contexts. There is also a specialized level, and opportunity for selected licentiates to become a CO Anesthetist. These specialized MLHWs in Zambia have to undergo an additional 2 year training program before receiving this qualification.

Typologies (for COs and Medical Licentiates) and brief descriptions are presented below. It was not possible to report separately on these cadres, as very little information is available, especially on the Medical Licentiate. Information on COs appears to be more easily available. As CO training is a requisite step before being able to move up to Medical Licentiate level, the characteristics of these cadres are indeed very similar, only differing in so far as the scope of practice would be much wider for the latter.

Brief illustration

The main MLHW in Zambia (relevant to our investigation), is a Clinical Officer, but they are also interchangeably referred to as Medical Licentiates, although this is not necessarily correct. A Clinical Officer would be the general cadre, whereas the Medical Licentiate is the advanced MLHW cadre. In other words, a Medical Licentiate would be a qualified Clinical Officer having some experience and then undergoing an additional 2 year advanced training in clinical medicine and surgical training. They receive an advanced diploma in General Medicine, which permits them to perform routine surgical and obstetric health care, as well as providing expert clinical services in hospitals.

Development as a cadre

COs in Zambia were initially established in 1939 to bolster shortages of medical doctors and to specifically provide primary care level health services. These cadres did not develop from an existing cadre in Zambia, and developed as a completely new profession, although built on the same kind of training structure as set up for the medical doctor training. They are, at present, increasingly being used to specifically scale up ART provision, and thus assisting in strengthening HIV care. The training program for the clinical officer course in Zambia does not require a professional diploma/degree and work experience before enrolling.

Recruitment and selection to training schools

Trainees enter directly from school into a clinical officer program in Zambia. In other words, unlike the case for Mozambique, where individuals to enter into the TC program are identified from the most promising COs, there is no specific feeder cadre for the CO training program in Zambia.³² Trainees can enter the program with a minimum of grade 12, with 5 subjects passed at credit level or better, with English, Mathematics, Biology, and another area of science required to be 4 of those 5 subjects passed. Table 17 illustrates the typical requirements for entry into a CO training program in Zambia.

Roles and responsibilities

The general roles and responsibilities of a CO in Zambia include a wide variety of areas. Their scope of practice spans from the dispensing of general medicine, to anesthesia, orthopedic and obstetric care (although they are not allowed to do cesarean sections). This can be dispensed through any type of health facility.

Education and Training

There are 39 public and private health training institutions in Zambia, of which the Chainama College of Health Sciences, Evelyn Hone College and University of Zambia's School of Medicine are the main providers of health training.³² In general, the specific training programs for COs are provided under the auspices of the University of Zambia.

As stated before, a CO will, upon completion of a 3 year post-secondary school training program, be awarded a Diploma in Clinical Medical Science. This program typically will include both theory and practical training, with the former lasting 2 years, with the final year traditionally taking the form of an internship at a provincial level hospital.

Table 17: Summary of courses offered at Chainama College of Health Sciences in Zambia

Courses offered	Course duration	Award	Remarks
Clinical Officer (General)	3 years	Diploma in Clinical Medical Sciences General	Basic (pre-service) program
Clinical Officer (Psychiatry)	3 years	Diploma in Clinical Medical Sciences Psychiatry	Basic (pre-service) program
Environmental Health Technologist	3 years	Diploma in Environmental Health Sciences	Basic (pre-service) program
Registered Mental Health Nurse	3 years	Diploma in Registered Mental Health Nursing	Basic (pre-service) program
Medical Licentiate	2 years	Advanced Diploma in General Medicine	Post Basic (in-service) Course
Ophthalmic Clinical Officer	2 years	Advanced Diploma in Clinical Ophthalmology	Post Basic (in-service) Course
Ophthalmic Nursing	2 years	Advanced Diploma in Ophthalmic Nursing	Post Basic (in-service) Course
General Counseling	2 years	Diploma in General Counseling	Ordinary Diploma Course
Optometry Technologist	3 years	Diploma in Optometry	Basic (pre-service) program

Source: Chainama College of Health Sciences website

Accreditation/licensing, and employment

Accreditation for the Diploma in Clinical Medical Sciences, or the specific CO training program at a university, is obtained through the Health Professions Council of Zambia (MCZ). This body is thus responsible for regulating and assuring the quality of the training programs, and thus for administering the qualifications. Medical Licentiates and COs apply to be licensed through the Medical Council of Zambia, and through this mechanism, the practice of the professionals is regulated. The MCZ regulates the professional conduct of Medical Licentiates, COs General, COs Psychiatry, Environmental Health

Technologists and COs Ophthalmology, while the General Nursing Council of Zambia (GNC) regulates the training and the professional conduct of Registered Mental Health Nurses and Registered Ophthalmic Nurses.

Although Zambian COs were initially established to specifically provide primary care level health services, they are practicing at various types of health facilities (in- and out-patient facilities, for instance).

Supervision and monitoring of programs

The supervision and monitoring of the quality of programs does not appear to take place centrally. Programs are evaluated internally and disparately, by the partners involved, and these are available as program evaluation reports. There is a need for the Ministry of Health (MoH) to collate and verify this information in order to offer a better perspective of the supply side context in its consideration of how to respond to the HRH crisis in the country.

Performance Evaluation

Performance evaluation is well established in terms of the education and training program for COs and Medical Licentiates, but this is not true for practitioners.

Salaries/ Incentives and retention

The monthly remuneration before tax for COs is reported as being 1,141,770 Zambian Kwacha, which is equivalent to roughly \$350. Although there is no recruitment and retention benefit included in the CO remuneration package, they receive a commuted overtime (40,000), commuted night duty (30,000), uniform upkeep (35,000), and housing allowance (250,000).³⁰ It is clear that allowances make up a very substantial proportion of the overall salary package, and although these packages are quite comparable in general terms, this is not so for the private sector, which pays significantly higher salaries than the government and NGO sectors. In the HRH Plan though, one of the expected outputs under the objective to ‘provide a well-motivated, committed and skilled professional workforce’ (2005:27), recruitment of 100 additional COs on an annual basis through a retainer package is set.

The issue of retention is addressed very specifically in an over-arching ZHWRS, which aims to increase the availability of skilled health workers in rural areas. Extensive work has already been done to implement and extend this type of scheme to other health care workers, Medical Licentiates being the first MLHWs to be included, with recruitment underway for COs (2009).

Professional Advancement

The professional advancement available for COs is to become a Medical Licentiate through an additional 2 years of advanced clinical medicine and surgical training. The Medical Licentiate is the post-basic MLHW in Zambia. Because it is an Advanced Diploma in Medicine, it is still not at the degree level and makes it difficult to translate into an equivalent doctoral degree course. There is also the possibility for some to complete a further 2 year specialized education program to become a CO Anesthetist.

CLINICAL OFFICERS/MEDICAL LICENTIATES			
Brief illustration of the exact type of NPC	Clinical officers undergo an advanced training (3 year post-basic program) in medicine, surgery, pediatrics, obstetrics and gynecology. They supplement the work of doctors by providing advanced medical and surgical care, especially where doctors are not available.		
Development as a cadre	Training program for clinical officer does not require professional diploma/degree and work experience before enrolling.		
Recruitment and selection of NPCs to training schools	Clinical Officer General: COG program is offered to grade 12 school leavers and non-school leavers who have minimum entry requirements. Full Zambian School Certificate of Education or equivalent with five subjects passed at credit level or better. Four of the subjects must be English language, Mathematics, Biology and Science.		
Roles and responsibilities of NPCs	<p><i>General:</i></p> <p>Upon completion of the course, graduates are awarded a Diploma in Clinical Medical Sciences General which allows them to diagnose and manage general in- and out- patients at various health facilities which include medical and surgical care.</p>	<p><i>Maternal Health:</i></p> <p>Clinical Officers can dispense specifically general medicine and obstetric care, although they are not permitted to do caesarean sections.</p>	<p><i>Child Health:</i></p> <p>The extent to which these cadres can contribute to child health is limited in that they cannot perform cesarean sections, but they can dispense general medical care, as well as obstetric care, which of course impacts on child health at birth, and during the course of a pregnancy.</p>
Training of NPCs (initial and on-going)	<p><i>Basic training:</i></p> <p>In Zambia, clinical officers typically have three years of post secondary school training combining theory and practice.</p>	<p><i>Internship/Supervised work training):</i></p> <p>Training model: Classical training college for 2 years, with attachment at national teaching hospital, followed by provincial hospital internship.</p>	<p><i>On-going training after joining profession:</i></p> <p>Information on this aspect was not found, although the HRH plan recognizes the need for continuing professional development (CPD).</p>
Accreditation/ licensing bodies	<p><i>Institution responsible:</i></p> <p>The Medical Council of Zambia (MCZ) regulates the professional conduct of Medical Licentiates and Clinical Officers General.</p>	<p><i>Criteria for licensing:</i></p> <p>Individuals need to be in possession of a Clinical Medical Sciences qualification, and then they can apply for registration with the Medical Council of Zambia.</p>	<p><i>Licensed to practice esp. in MCH:</i></p> <p>In relation to Maternal Health, they are allowed to see to General Medical and Obstetric Health Care needs, although they cannot provide surgical care in relation to Obstetric needs.</p>
Who train them	In the main, the training programs for Clinical Officers are provided under the auspices of the University of Zambia's School of Medicine. The programs are all affiliated to the University of Zambia (UNZA).		
Where do they work	They work in both the primary and secondary care setups, at various health facilities in rural and urban areas.		
Supervision and monitoring in these programs	Information on the demand side of training is much more easily available in comparison to information from the supply side. It appears that there is no coordinated mechanism through which supervision and monitoring of disparate clinical officer and medical licentiate training through various programs. Although each program does appear to do its own program evaluation, as evidenced for instance in a recent advertisement for the appointment of a Medical Licentiate Adviser and Project Manager for the Solidar Med program, which operates through making possible the training of medical licentiates at the		

	Chainama College of Health Sciences, in response to the shortages of medical doctors, as a way in which to strengthen its strategic evaluation and program design capacity.		
Performance evaluation	<p><i>Who and how frequently is performance monitored:</i></p> <p>The performance monitoring of professionals (COs and Medical Licentiates) does not appear to take place through a central function. Although and extensive evaluation structure is present for trainees.</p>	<p><i>Outcome of evaluation:</i></p> <p>Students are required to sit for examinations at the end of each semester for those in the first year and second year first semester. The examinations are conducted internally by the college</p>	<p><i>How many have taken place in the last X years:</i></p> <p>Evaluations take place from second year second semester up to third year third semester, the examinations are conducted by the Examinations Council of Health Sciences, University of Zambia (ECOHS-UNZA).</p>
Salary/ Incentives	<p><i>Initial monthly income and benefits:</i></p> <p>Clinical Officer: 1,141,770 Kwacha = \$349 (2005)</p> <p>Benefits: Zambia Health Workers Retention Scheme (ZHWRs) promotes a package of allowances and incentives to recruit and retain key health workers in rural health facilities and disadvantaged training institutions.</p>	<p><i>Annual increments:</i></p> <p>The annual increments are established yearly but, has to occur within the framework of what is set in terms of the Public Service Emoluments guidelines, which in the latest HRH Strategic Plan was set at 8.01% of PE to GDP ratio. The plan however, recognizes that some staff increases are needed to meet the service needs and an increase in remuneration is needed to attract and retain critical staff.</p>	<p><i>Added incentive different from health workers not working in primary/ secondary care programs:</i></p> <p>Clinical officers are given Commuted overtime, commuted night duty, uniform upkeep and a housing allowance. Free health services to all health workers.</p>
Retention	<p>Specific Health workers receive a recruitment and retention allowance which is pegged at around 20% to HRH who are degree holders in the public service (Doctors, Pharmacists, Lab Scientists, Tutors and Senior Nurses and Nurse Paramedics). Unfortunately this is not available to general Nurses, Midwives, Clinical Officers, Lab Technologists, Pharmacy Technicians and Lab Technicians. (This allowance may be extended to other HRH with critical skills that are diploma and certificate holders).</p> <p>The Ministry of Health through the support of Royal Netherlands Embassy has implemented a generalized health worker retentions scheme.</p> <p>These programs on average have a time-span on average between 3 to 5 years. For instance:</p> <ul style="list-style-type: none"> - the Solidar Med program on supporting the medical licentiate training program at Chainama College of Health Sciences in Zambia has a program span from 2011 – 2015. -The joint initiative between RCSI and COSECSA to increase the number of appropriately-trained and qualified surgical trainees at both membership and specialist level and the training of non-physician clinicians in essential surgery in Zambia, and other countries (a 3 year program from 2011 – 2013). 		
Professional advancement	<p>A Clinical Officer, with enough experience and having completed an additional 2 year advanced surgical and clinical medicine training program can become a Medical Licentiate. Other than what is required to advance to</p>		
		<p><i>Future degrees they can apply to:</i></p> <p>The Medical Licentiate is the post-basic level of MLHW, and</p>	

another level, there appears limited capacity to ensure CPD, although the HRH Strategic Plan explicitly notes the importance of this aspect.

this cadre can still undergo a further 2 years of training to become a Clinical Officer Anesthetist.

Appendix 7.1

Country Context

Country profile

The population of Zambia is estimated at roughly 13 million,²⁵ with about 10% of the population living in Lusaka, the capital city.²⁵ It covers an area of 752, 612 square kilometers and is landlocked, neighbored by 8 countries (Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia, Angola, and the Democratic Republic of Congo).

The population annual average growth rate between 2010 and 2015 was put at 2.4%, with the growth rate being much higher in the urban population (3.2%) in comparison to the rural population (2.0%).³³ The country is also considered to be very urbanized (36%) in comparison to the neighboring regions (38%), but still lagging behind the global average (50%).

The life expectancy at birth is estimated to be quite low overall (46 years of age), but higher for females (50 years) than for males (46 years).³⁴ These rates do not reflect any significant improvement in comparison to those recorded in 1980, for instance, where life expectancy at birth was put at 50.4 years for males and 52.5 years for females. It is thus not surprising to find a high adult mortality rate of 527 per 1,000 population in comparison to a regional average of 383 per 1,000 population, and a global average of 176 per 1,000 population. The under-5 mortality rate is also roughly double that of the global average, but slightly lower than what is found for the regional average (see Table 18), and also reflects a decrease in the rate since 1990.

Table 18: Select health profile indicators for Zambia, 2010

	Country	Regional Average	Global Average
Life expectancy at birth	48	54	68
Under-5 mortality rate (per 1000 live births)	111	119	57
Adult mortality rate (probability of dying between 15 and 60 years per 1000 population)	527	383	176
Maternal mortality ration (per 100 000 live births)	440	480	210
Prevalence of HIV (per 1000 adults aged 15 to 49)	135	47	8
Prevalence of tuberculosis (per 100 000 population)	345	332	178

Source: WHO (2012)

Furthermore, the country has a high fertility rate (in 2007 this was put at 6.2%⁴). Because almost half (47%) of the population is under the age of 15 years, Zambia has a very high dependency ratio. This of course contributes to the large proportion of the population living under the poverty line (in 2004 the Central Statistics Office estimated this to be 68% of the population).⁴

The country's burden of disease reflects a high prevalence of HIV/AIDS. It has been asserted that within southern Africa, Zambia has one of the world's most devastating HIV/AIDS epidemics, with 1 in every 7 adults in the country living with HIV.³⁵ What appears to characterize the HIV/AIDS prevalence in Zambia, is that it does not primarily affect the most underprivileged. In fact, it is most prevalent in the 2 urban centres of Lusaka and the Central Province, rather than in poorer rural populations.^{36, 37} Furthermore, the gendered impact of this epidemic is also illustrated in the country. The most vulnerable are recognized as young women and girls, particularly aged 15-24, where HIV prevalence is nearly 4 times that of men in this age category.³⁸

Any analysis for this country thus needs to take into account the effects of a high prevalence of HIV/AIDS (almost 17 times that of the global average), a very low life expectancy, continuing high infant mortality rates, high adult mortality, and a high proportion of poverty driven very much by the structure of the population, which has almost half dependent on those working.

Zambia is one of Sub-Saharan Africa's most highly urbanized countries, as over one-third of the country's population is concentrated in a few urban zones strung along the major transportation corridors. However, almost two-thirds (64%) of Zambia's population continues to be situated in rural areas. The proportion of rural population has increased marginally during the last three decades, from 60% in 1980.²⁶ This implies an urban-rural migration trend, which is most significant in the most urbanized provinces of the country -- Copperbelt, Lusaka, Southern and Central. Indeed, these provinces have over the years been characterised by economic decline, which might render them less attractive.²⁶

During much of the last 2 decades, trend data on food production indicate that the production of maize, the main staple crop, has been below national requirements. Maize production, in particular, has been severely affected by recurrent unfavorable climatic conditions and reduced support to small-scale farmers. The production of the minor staple food crops and other crops has been fluctuating, leading to increased vulnerability to food insecurity, especially among the rural population.³⁹ Zambia is certainly not unique in that rural residents have worse outcomes on many of the health indicators in comparison to urban residents – this disparity holds true in the world's richest to poorest countries. However, Zambia's vast size (752,614 sq km), varying climate (some roads are often impassable during the wet season), and increasingly difficult economic situation, negatively impacts the ability of health services to reach the country's rural population.²⁷

Zambia takes its name from the Zambezi River, which forms its southern boundary. It occupies a near central position on the southern African subcontinent, forming approximately 2.5% of the continent's total area. The total arable land available is estimated at 42 million hectares but of this, 36,000 hectares (0.1%) is currently utilized for cropland and about 6% pastureland.³⁹

The country consists for the most part, of a high plateau, while isolated mountain ridges occupy the eastern border. Over most of the country, the surface tends to be flat, broken by small hills, with underlying rocks containing minerals and the Copperbelt, the mainstay of the economy. The plateau is broken by the huge valleys of the Upper Zambezi and mainly the Kafue and Luangwa rivers. The 3 great natural lakes of the country (Bangweulu, Mweru and Lake Tanganyika) are in the north. The vegetation is of the savannah type and over half the country is covered by trees, varying from open woodlands in the drier south to tall dense woodlands in the north and northwest.⁴⁰

Formerly the British protectorate of Northern Rhodesia, Zambia was under British dominion from 1888 until 24 October 1964, when it became an independent republic within the Commonwealth, under the

leadership of Kenneth Kaunda and his United National Independence Party (UNIP). The then president consolidated control over the nation in the ensuing years, culminating in the 1972 abolition of political parties other than the UNIP.³⁹

The one-party state was changed by the 2001 election when 11 candidates were on the ballot for president. This election was marked by administrative problems with 3 parties filing a legal petition challenging the election of ruling party candidate Levy Mwanawasa. Mwanawasa was re-elected in 2006 in an election that was deemed free and fair. Upon his abrupt death in August 2008, he was succeeded by his Vice President, Rupiah Banda, who subsequently won a special presidential by-election in October 2008. Under President Banda, the Task Force on Corruption was abolished.²⁸ Currently, Zambia is undergoing a constitutional review process to address serious gaps in its constitution, such as the absence of protection for economic, social, children's, and women's rights.

Zambia's population comprises more than 70 ethnic groups. As per the 2000 Census, the ethnic groupings in the country consist of 99.5% African (Bemba, Tonga, Chewa, Lozi, Nsenga, Tumbuka, Ngoni, Lala, Kaonde, Lunda, and other African groups), and 0.5% other (Europeans, Asians, and Americans). Various languages are spoken: Bemba (official) 30.1%, Nyanja (official) 10.7%, Tonga (official) 10.6%, Lozi (official) 5.7%, Chewa 4.9%, Nsenga 3.4%, Tumbuka 2.5%, Lunda (official) 2.2%, Kaonde (official) 2%, Lala 2%, Luvale (official) 1.7%, English (official) 1.7%, other 22.5% (CSO, 2003). Some ethnic groups are small, and only 2 have enough people to constitute at least 10% of the population. The predominant religion is a blend of traditional beliefs and Christianity, while Christianity is the official national religion (US Department of State, Bureau of African Affairs, 2011). Christians form 50 to 75%, Muslim and Hindu 24 to 49%, and indigenous beliefs 1% of the population.²⁸

Expatriates, a majority of whom are British and South African, live mainly in Lusaka and in the Copperbelt in northern Zambia, where they are employed in mines and mine related activities. Zambia also has a small but economically important Asian population, most of whom are Indians.⁴¹

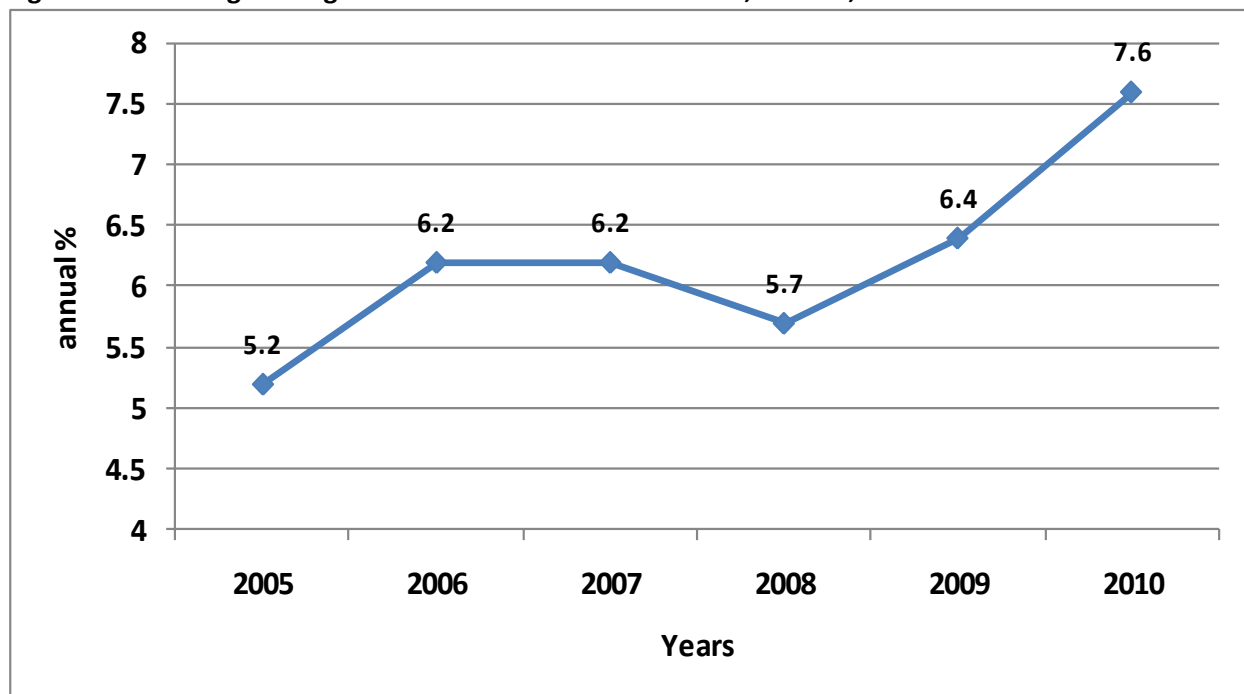
Economy and Poverty

The World Bank's (2011a) main criterion for classifying economies is according to gross national income (GNI) per capita. Once a middle-income country, Zambia began to slide into poverty in the 1970s when copper prices declined in world markets. The country is currently classified as a lower-middle-income country (\$1006 to \$3975).

The initial socialist government made up for falling revenue by increased borrowing. After democratic multi-party elections, the Chiluba government came to power and was committed to an economic reform program. The government was successful in some areas, such as privatization of most of the parastatals, maintenance of positive real interest rates, the elimination of exchange controls, and endorsement of free market principles. However the country has yet to effectively address some of its governance challenges and issues such as reducing the size of the public sector and improving Zambia's social sector delivery systems.⁴²

Zambia's economy has experienced strong growth in recent years, with about 6% real GDP growth per year from 2005-10 (Figure 3). Privatization of government-owned copper mines increased copper mining output and profitability, spurring economic growth. However, a high birth rate, high HIV/AIDS burden, and market-distorting agricultural policies have meant that Zambia's economic growth has not dramatically decreased the high poverty rates.²⁸

Figure 3: Percentage Changes in GDP at Constant 1994 Prices, Zambia, 2005-2010



Source: CSO, National Accounts Statistics (Zambia, 2006 -2010); World Bank (2010).

Until results of the Living Conditions Monitoring Survey conducted in early 2010 are published, there is no recent quantitative data available for the incidence of poverty in Zambia.²⁹ According to an earlier survey (conducted in 2006), 64% of the Zambian population lives *below* the poverty line.²⁸ The poverty headcount ratio *at the national poverty line* is 60.5% of the population.⁴³ A 2005 ILO report warned that almost a million children in the country can be classified as child labourers, while about 3 in 5 children in Zambia are malnourished.²⁹

Having opened up its economy in line with liberal market principles, Zambia's period of economic growth appears not to have benefited the poor, as the GINI measure of inequality for Zambia remains at an unusually high rate of 50 (One World Global Poverty Guide, 2010). The disparity of wealth between Zambia's rich and poor is considerable. The poorest 60% of the population share 25.2% of the nation's wealth, whereas the wealthiest 10% benefit from 39.2% of the wealth. Incomes have not grown as fast as inflation, which, in combination with the introduction of user fees for health and education services, means that a majority of Zambians cannot afford to provide themselves with even basic social services.

⁴⁴

There are vast disparities in living conditions between Zambia's rural and urban inhabitants. For example, while 64% of the urban population have access to safe water, only 27% of the rural population is as fortunate.⁴⁴ The Civil Society for Poverty Reduction has observed that an average of 85% of people in rural and 34% of people in urban areas are still living under the poverty line and poverty levels are still on the increase under the current budgetary implementation framework.

The majority of Zambians do not have access to proper housing, quality health services, education, clean water and sanitation and, most significantly, adequately balanced diets. The production of food needs to

increase, storage and distribution should improve, and issues such as availability of and accessibility to food, especially in the rural areas, needs to be addressed. National development strategies should also live up to their promise of creating employment to provide adequate income, especially to those in the urban areas, where the cost of living is very high.⁴⁵

A per capita annual income at \$1,500 places the country amongst the world's poorest nations. Social indicators continue to decline, particularly in measurements of life expectancy at birth and maternal mortality. The country's rate of economic growth cannot support rapid population growth or the strain which HIV/AIDS-related issues (i.e., rising medical costs, decline in worker productivity) places on government resources.⁴² Corruption scandals in the Ministry of Health have also provoked the suspension of aid by The Global Fund to Fight AIDS as well as some major European donors.²⁹

The budget for social protection amounts to less than 3% of Zambia's total planned expenditure for 2010, and as such, more resources should be allocated to poverty reduction.²⁹ It has further been recommended that the Zambian Government increase capital development expenditure to at least one-third of every annual budget, stressing that massive capital expenditure will eventually lead to infrastructure building and improvement, a vital component of any nation's development.

Health Systems Overview

Major health indicators

The HIV/AIDS epidemic is ravaging Zambia. Approximately 14.3% of Zambians are infected by HIV. Over 800,000 Zambian children have lost one or both of their parents due to HIV/AIDS.⁴¹

Life expectancy at birth for the total population is only 52 years, which places it in 208th position among 222 countries (in descending order from highest to lowest) across the world. The life expectancy of men is slightly lower (51 years) compared to that of women (54 years).²⁸ Zambia's under-5 mortality rate was put at 182 (2004), with a slightly higher rate for male (190) in comparison to female (173) births. Maternal mortality is also very high, at 750 per 100 000 live births (2004).

According to the US Central Intelligence Agency (2011), there is a very high risk of major infectious diseases such as food, waterborne (diarrhea, hepatitis A and typhoid fever), vector borne (malaria and plague), water contact (schistosomiasis), and animal contact disease (rabies).²⁸ The top three causes of death as of 2002 were HIV/AIDS (43% of deaths), lower respiratory infections (12% of deaths) and malaria (9% of deaths). For the causes of death in children under-5 for the period 2000 - 2003, the top three reasons are neonatal causes (23% of deaths), pneumonia (22% of deaths), and malaria (19 % of deaths).

The country has made very little progress towards reaching the Millenium Development Goal (MDG) of reducing the under-5 mortality rate to 63 by 2015 (this rate has reduced from 191 in 1990/2 to 168 in 2002). In terms of maternal mortality rate, Zambia is faring extremely poorly - the rate has increased from 649 per 100,000 live births in 1996 to 729 in 2002. This is more than 7 times the target set (162). Also, in terms of Malaria, instead of moving towards reaching the target of less than 121 incidences, the country's Malaria incidence rate has increased from 255 in 1990/2 to 388 in 2002. It is of no surprise then that even in their health plan, the country admits that "Zambia is unlikely to meet most of its MDGs by the target year of 2015."³⁰ Here, the need to deal with their extensive human resources crisis is

identified as a major factor in improving the health sector's ability to improve its performance to meet the MDGs.

Existence of an HRH strategic plan/policy for MLHWs

Although the country does not have an explicit MLHW national strategic plan or policy, the role and impact of MLHWs are mentioned and considered most extensively in their National Health Strategic Plan and Human Resources for Health Plan.

Zambia's health system is driven most explicitly by the National Health Strategic Plan, of which the latest 2006–2010 version is the fourth of its kind.³⁰ The plan differs from those before it, in that while it acknowledges a wide array of problems and issues that need to be attended to, it emphasizes the prioritization of specific intervention strategies. These are operationalized and identified in 7 public health interventions and 5 systemic interventions. It is also very explicitly framed by the objectives set out in the MDGs, as is evident in its title *"Towards attainment of the Millennium Development Goals (MDGs) and National Health Priorities."*

It is further telling that the country's Human Resources for Health (HRH) Strategic Plan 2006 - 2010 recognizes one of the major obstacles for Zambia to achieve the MDGs related to child and maternal health and combating priority diseases—including malaria and HIV/AIDS—is the shortage of HRH.³⁰ The main solution to this HRH problem is identified as residing in 2 key areas: primarily, in improving the conditions of service and the workplace environment in order to better attract HRH; and secondly, in the plan to deploy and use staff more efficiently and effectively through improved HR management and practices.

The plan was developed mainly by the Ministry of Health (MoH), and asserts that key stakeholders were involved. It appears that there was considerable interaction and consultation with national and international co-operating partners, professional associations and workers unions, etc. The plan was developed to correspond with the timeframe of the National Health Strategic Plan, indicating a clearly identified synergy in terms of implementation of structures in the health sector, with the human resources needed to effect that implementation. The Ministry of Health is clearly identified as the body responsible for the regulation and leadership of the sector, and by extension, the human resources operating in the system. The fundamental HRH problems are identified as:

- A public sector functioning with only half of the required health workforce
- High levels of internal and external brain drain
- Increased levels of attrition through deaths and resignations, and
- Imbalances in the distribution of health workers between rural and urban areas (MoH, 2005b)

The HRH Strategic Plan appears to be very comprehensive, covering the current scope of active initiatives, objectives and strategies to solve the sector's problems, a consideration of risks, and the resources needed for the implementation, while also putting in place mechanisms for monitoring and evaluation. However, there is little consideration of the supply side, in terms of the training required to upscale the workforce, as well as no specific mention of MLHWs. Although information on the HRH and the health system is a bit dated, and is not in all cases presented at the level of detail required for a situational analysis of MLHWs, at least the information presents us with the demand side data. The Zambian HRH Strategic Plan is lacking in presenting concurrent supply side information. Thus, in order for MLHWs to be more effectively integrated into the Zambian health system, more focus should be

placed on gathering and coordinating information on their training. This will assist in more accurately and realistically planning for the specificities of the Zambian health sector.

The defining feature of the Zambian Health Sector is that in terms of its organizational structure, its health service delivery is decentralized, so that key management responsibilities and resources reside at the district level.³⁰ Health facilities in general are provided by the government, with the remainder being supplied by mission and private institutions (a total of just under 1500 institutions). The health system is predominantly public.

Overview of programs to achieve the MDGs 4, 5 and 6 in Tanzania, Zambia, and Mozambique

This section will consider the main programs operating in Tanzania, Zambia and Mozambique, explicitly involving, or advocating for, the use of, MLHWs in order to reach the relevant MDGs. This enables us to evaluate what the findings on MLHWs across the three African countries can contribute to a better understanding of the different types of mid-level health workers, which should assist in measuring their impact.

Major programs operating in these countries

Strengthening the health system

In trying to meet the health related MDGs, it has been recognized that strengthening the health systems needs to be the focus, so that more countries can be capable of delivering a wider range of health services on a much larger scale than what is the case at present (WHO, 2008b). Amidst claims that ensuring a better quality service from current stock could achieve this objective, there has been compelling evidence showing a direct correlation between the numbers of people that have access to health care services and the numbers of health-service providers in a specified area (WHO, 2008b). Greater numbers of healthcare workers positively affect access as well as the levels of health in a specified area. It is recognized that any strategy that intends to increase health services in terms of either its scope or reach will need to consider long, medium and short-term initiatives that will assist in the increased skilling, re-skilling, up-skilling, and retention of health workers.

Listed below are the relevant programs operating in these countries that have a broader focus to strengthen the relevant health system in order to better respond to their specific health challenges, with particular consideration of the roles that MLHWs can play:

- The ***Capacity Project Partnership: Planning, developing and supporting the health workforce***, is a program uniting international organizations such as; USAID, IntraHealth, JHPIEGO, PATH, LAT, IMA World health, MSH and TRG. This project advocates for task-shifting for a strategic skill mix of HRH, for various reasons: to address skills shortages, reduce labour costs, quality improvement, new medical treatments (for e.g., scaling up ARV therapy), health sector reform (decentralization), to support new health programs (for e.g. president's malaria initiative), changes in legislation (e.g. revised scopes of work for various cadres).
- ***USAID*** also contributes in health systems strengthening in Tanzania through support for the MOHSW through planning, budgeting, supervision, and monitoring. The Norwegian government provides specific support to improve performance of providers through an incentive-based scheme. The outlining of specific functions or services key in positively impacting on MDGs is important. This helps research in the field become more focused, and can assess the success of specific health care

providers in providing these services (specifically useful for research into MLHWs). It gives an objective measure to assess which of these functions these health care workers are authorized and regulated to provide and which they are actually providing in practicality. With this information, it will be much easier to link better health outcomes, and indeed impact on the MDGs to these cadres. This should explore what the expanded role of MLHWs could be, but it is especially important for policy makers to consider how MLHWs could fit with current human resource plans and strategies in each country, and how management and regulation structures can accommodate them in an appropriate way. This is a key approach that can assist in providing realistic ways in which these cadres can be integrated into national health systems.

- In 2007, the **Frontiers project** evaluated the activities of decentralization of Post-Abortion Care (PAC) services and found that “PAC can be safely and successfully decentralized with services capably provided by mid-level personnel in health centres, dispensaries, and some health posts” (USAID, technical brief).
- In terms of increasing the training of mid-level health workers to increase access to healthcare, the **African Network for Non-Physician Clinician Training** was formed in July 2010, in Lusaka. These include members from institutions with non-clinician training programs in sub Saharan Africa (Zambia, Malawi, Mozambique, Tanzania, Ethiopia, South Sudan, Burkina Faso, Sierra Leon and Liberia). The goal of the network is to foster a community of practice amongst these training institutions in order to contribute effectively to maternal and neonatal health issues.
- Aimed more broadly at strengthening health systems in Zambia, is the **Health Services and Systems Program**, which aims to improve the health status of the populace by expanding access to and improving the quality of maternal, child, reproductive, and HIV/AIDS health services. The program has made significant progress in all these areas.
- Furthermore, also important is the **Zambia UK Health Workforce Alliance**, which brings together Zambian based and UK based organizations to promote and improve coordination and impact of work in health.
- Also worth mentioning is **SolidarMed in Zambia**, which concentrates on the improved provision of human resources for rural health in Zambia. This is done through supporting national training programs for HRH. One of its projects has the focus of supporting the Medical Licentiate (ML) training program at Chainama College of Health Sciences in Lusaka. Some of the key outcomes in this regard have been the training of 106 ML since 2002, 74% of which work in district hospitals. Continuing progress is being made, as 24 ML students start their training. The program duration is from 2011 – 2015, with an overall budget of 4, 315, 000 CHF.
- Lastly, the **Clinton Health Access Initiative (CHAI)** launched a program in Zambia to help the government expand the capacity and improve the quality of the national health workforce.

Providing increased access to EmOC and PAC

Programs instituted to improve maternal health and reduce child mortality are linked. It is clear that in so far as the health of the mother before, during and immediately after pregnancy can be improved, this will have a large effect on child mortality. As most mothers and children lose their lives due to complications during birth, many programs aim at widening access to emergency obstetric and neonatal care. Furthermore, widening access to reproductive education (as well as general levels of education of mothers and girls), family planning and basic health knowledge is also recognized as important to reach these goals.

The HSSE (2011b) asserts that having a sufficient number of well-trained and supported health professionals providing good quality emergency obstetric care is central to any country's ability to realize MDG5. It has been recognized that at the very basic level MLHWs can have an impact in increasing access to a wide range of health services, both from a preventative, clinical and surgical perspective. Their role in specifically providing access to emergency obstetric care (EmOC) (see Table 19), post-operative care, PAC and reproductive care has been highlighted. This collection of services appears to have the greatest potential to have a significant impact on the reduction of both maternal and child mortality. The role they can play in postpartum care is an especially neglected area.

Table 19: EmOC signal functions	Basic EmOC services	Comprehensive EmOC services
Administer parenteral antibiotics	X	X
Administer uteronic drugs	X	X
Administer parenteral anticonvulsants for pre/eclampsia	X	X
Perform manual removal of placenta	X	X
Perform removal of retained products	X	X
Perform assisted vaginal delivery	X	X
Perform neonatal resuscitation	X	X
Perform surgery (e.g. caesarean section)		X
Perform blood transfusion		X

Source: HSSE (2011b) – Policy Brief Series

In terms of initiatives aimed more at prevention and increasing the general health of mothers and children, we find that those aimed at widening access to malaria nets, and immunization and vaccination programs, and attempting to provide increased access to better nutrition and clean water are most effective. Here, MLHWs can play an important role in increasing immunization and vaccination, and through more general health education.

Listed below are the relevant programs operating in these countries that focus on reducing maternal and child mortality, with particular consideration of the roles that MLHWs can play:

- **UN 2010 Global Strategy for Women's and Children's Health:** WHO, UNICEF, UNFPA and AUs 2009 Campaign on Accelerated Reduction of Maternal Mortality in Africa (CARMMA). UNFPA, UNICEF, WHO, World Bank & UNAIDS Health 4+ partners to support emergency obstetric and neonatal care needs assessments and help cost national maternal, newborn and child health plans, mobilize resources, increase the number of skilled health workers, and improve access to reproductive services. In partnership with governments, the WHO and others, and UNICEF provide high-impact cost effective health and nutrition interventions to reduce the number of neonatal and young child deaths from treatable causes.
- Initiatives such as **Health Systems Strengthening for Equity (HSSE): The power and potential of mid-level providers**, highlights the great impact that MLHWs can have on meeting MDG5 through increasing access to EmOC and neonatal care by advocating for task-shifting of these key skills and training more MLHWs with these skills. The Health Systems Strengthening for Equity (HSSE): The power and potential of mid-level providers is a four-year project, was launched in 2007, and is managed by the **Averting Maternal Death and Disability Program (AMDD)**. The aim of the project is to support health system strengthening for equity in Africa by building an evidence base on the role of mid-level providers in maternal and newborn health and promoting greater political leadership and critical policy action on their use. The project has 4 interrelated objectives: 1) expand the evidence base in support of effective use of mid-level providers through the generation of new

evidence and a critical analysis of existing evidence; 2) increase recognition and effective use of mid-level providers by national, regional, and global policy makers; 3) advocate for an enabling environment that optimizes performance of mid-level providers; and 4) in partnership with African institutions, deepen local capacity to research and analyze human resource and health systems problems, develop innovative solutions, influence policymakers at local and global levels, implement sustainable new strategies, and build the capacity of northern institutions to successfully engage in and support partnerships of this kind. In this regard, and relevant to our specific investigation, Zambia, Mozambique and Tanzania have been selected for in-depth research because each country has well established cadres of mid-level providers delivering the bulk of emergency obstetric care (including caesarian sections) and there is documented political support to address the health worker problems in the countries.

- **USAID Mission**, with the commitment and matching of funds of the **MoH Tanzania**, supports programs that **decentralize PAC activities** in order to increase access in rural areas. Through the **ACQUIRE Project**, 15 service providers were trained. All these programs, except the in-service training through zonal training centres provide national coverage, or are in the process of being scaled up to national level. The biggest impact on reducing maternal and child mortality is found to be provided through the family planning and malaria programs (USAID, MCH Program description, nd). The importance of such a program is starkly illustrated by the reality that in developing countries, PAC programs are often only available in the urban or regional health facilities, which places rural women at the greatest risk for mortality and morbidity from related complications, because they lack access to such services. As a new MCH priority in the country, the mission is preparing a new 5-year strategy to introduce components of **Basic Emergency Obstetric Care and immediate newborn care in health centres and dispensaries**. Potential activities are identified as 1) advocacy and support of national policies supportive of emergency obstetric care at lower-level facilities; 2) integrated immediate newborn care and safe birth practices in pre-service and in-service training programs; and 3) logistical support for equipment and supplies for maternity services. These are key so that women can be reached by lower level cadres.
- Since 2006, the **World Lung Foundation (WLF)**, with support from **Bloomberg Philanthropies** has been working with the MoHSW Tanzania, and Tanzanian partners like the Ifakara Institute to **implement a maternal health program** in Tanzania. The program has a wide ambit, aiming for the training of personnel, renovations of health centres and construction of operating theatres, maternity wards, laboratories and staff housing. Up till now, the program has succeeded in upgrading 9 health care centres and 5 district hospitals. 26 staff houses also have been built, enabling staff to live close to facilities in remote villages. Also, more than 30 nurses, midwives and AMOs have been trained in emergency obstetric care.

Providing increased access to HIV/AIDS care

In order to reduce HIV/AIDS, there are also programs, which by means of task-shifting, aims to widen access to ARV treatment. Also, linked to the previously discussed MDGs is the role that MLHWs can play in the reduction of HIV/AIDS in terms of preventing mother-to-child transmission (PMTCT).

Based on early available evidence, the growing success of task-shifting, specifically for the delivery of HIV services in a variety of settings (WHO, 2008b), is being acknowledged. Task-shifting programs that rely on nurse- and clinical officer-initiated pediatric ART can allow for a dramatic scale-up roll-out, lowered mortality and lowered defaulting of treatment.

Listed below are the relevant programs operating in these countries that focus on reducing maternal and child mortality, with a keen consideration on the roles that MLHWs can play:

- The **Joint United National Programme on HIV/AIDS (UNAIDS)** pools resources and efforts to assist countries with technical support in the implementation of their national AIDS plans. UNICEF, WHO, UNFPA & UNAIDS helps countries to scale up their programs for the prevention of mother-to-child-transmission of HIV, including training, guidance and technical support to access Global Fund resources. **Global Initiative on education and HIV/AIDS (EDUCAIDS)**, assisting countries in planning and implementing comprehensive responses to address the effects of the pandemic on their education systems. Other Global Health Initiatives include the Global Fund to fight AIDS, TB and Malaria, the World Bank's Multi-country AIDS program (MAP) and PEPFAR, the US President's Emergency Plan for AIDS Relief.
- In Mozambique, an initiative named **Health Alliance International (HAI)** focuses on integrating HIV/AIDS, Malaria and other disease-specific services into the primary health care system. It further supports the Mozambican health system through building management and other capacities. In terms of the potential impact of mid-level health workers, through their research, they have established that *tecnicos de medicina* has clearly improved access to ART, and additional preliminary research indicates that they provide the same or better quality care in comparison to physicians.
- There is also a **Global HIV/AIDS Initiatives Network** that operates in Zambia, which provides funding to scale up access to HIV/AIDS services in Zambia.

This provides an appropriate framework within which to consider the MLHW programs operating in these three countries, and could explain why some have not been perceived as more or less successful. It also offers a way in which to assess which aspects are still missing in each country's MLHW programs, and what kinds of aspects need to be attended to in order to ensure better success and maximize the positive potential impact that these programs can have on the relevant MDGs in the given countries.

Highlighting the key challenges for MLHWs

Given that MLHWs appear to be best utilized in response to specified country contexts, the most successful application of these cadres takes place, as found by other studies, within a context of a well-motivated and supported MLHWs. These case studies highlight some other factors that are important for incorporating these cadres more effectively into national health systems, by illustrating some of the key challenges noted in each country case study.

The case of Tanzania

Lack of clearly communicated scopes of practice of AMOs and COs

Scopes of practice for different kinds of MLHWs (AMOs and COs) are not clearly communicated or set out in Tanzania (HSSE, 2011c). Additionally there is a need for clearer communication of related policy decisions, and the need for implementation by regulatory bodies, training institutions, district level management teams and the HRH professionals themselves. As is noted "when there is confusion about the scope of practice either in terms of regulation, government expectations, or training, health practitioners may not get the support they need or have the skills and competence required to provide good quality care" (HSSE, 2011c). Accordingly, this also renders the health system ill-prepared to have in place mechanisms that will actively and appropriately support, supervise and regulate these cadres in their practice, which is essential for integration of these cadres into the wider national health system.

Poor recognition of the role that COs can play in key health interventions

Given the disease profile (leading cause of death for children malaria, for adults HIV/AIDS) of this country, it appears that based on the most pressing health challenges (malaria and HIV/AIDS), prevention and health promotion is the greatest health service need. This clearly supports a more active role for lower level health workers, such as COs, who could assist in carrying the more preventive and health promoting load of more highly qualified medical practitioners. It appears that the role they can play in reducing HIV/AIDS prevalence and providing greater access to HIV/AIDS care is not fully acknowledged, and has not been taken advantage of in this case. Furthermore, there is no explicit consideration of their role and training in the overarching *One Plan* of Tanzania, which is a plan that aims to focus all the strategies aimed at maternal and child mortality reduction.

Poorly co-ordinated HRH systems

The HRH information system is not well established. Some information is gathered through the health management information system and professional bodies, but these data are very limited for the purposes of informing decision-making and proper planning. This is exacerbated by the lack of HR information, specifically from the private sector, and the limited ability and skills to analyze demand and supply in order to inform forecasting. Although it appears that supervision and monitoring of the training of these cadres are quite extensive, this does not seem to filter through to the employment situation. Tanzania has a board regulating the training of these MLHW cadres, but they do not register and control practitioners.

The case of Mozambique

The main obstacles that Mozambique faces in attaining the MDGs have been identified by the WHO (2011), and confirmed in the case study as:

- weaknesses in linkages and co-ordination between strategic plans and operating plans, and between the health and broader development sector
- staffing and systems limitations
- inadequate resource monitoring systems
- limited progress in translating global commitments to concrete action within the country
- the lack of a multi-sectoral approach to the achievement of health outcomes

Poor state and lack of coherence of HR systems

The ability to make more positive progress in ensuring the correct numbers and skills mix of HRH in Mozambique is hampered by the poor state of the HRH system in the country. This is exacerbated by poor personnel placement and management, and complex processes of career advancement (MoH Mozambique PESS: 2001 – 2005 – (2010)). A lack of coherence is recognized by the fact that while the management of high-level university trained health cadres are maintained centrally, the management of mid-level, basic and elementary cadres is decentralized to the provincial levels.

The Mozambican health system struggles with fragmentation. The extent of international interventions and NGO involvement in the health sector has led to a proliferation of training activities, usually designed to upgrade skills for foreign agency project involvement, but with a negative consequence in

that health workers (TCs and TMs) are drawn away from their routine duties, with per diems offered that are equivalent to a month's salary for mid-level health workers.

Lack of transparency in remuneration and career progression for TCs

The salary structure of HRH in Mozambique is not very transparent, and differs extensively between types of areas (urban/rural), types of sectors (public/private), the types of facilities (district, provincial, etc) the individual is working in, as well as whether they are working for an NGO, donor organizations, etc. The salary scales are viewed as very complex with the rate and specific pathway of progression loosely defined.

However, in an attempt to better motivate and retain both TC cadres, the government has recognized the need to create better career prospects and pathways. This is illustrated, for instance, in the creation of a High Institute of Health Science in 2003 for the training of TCs, where they can obtain a bachelors degree in surgery. The provision of possibilities for professional advancement has been recognized as key in improving the distribution, motivation and retention of MLHWs in Mozambique. Linked to this is the aspect of retention. Unlike Zambia, that has a clear and specified retention policy for HRH, this does not appear to be the case in Mozambique. It is discouraging to note that although MLHWs form such a big proportion of the HRH available to provide health care services, the factors impacting on their job satisfaction are not considered within policies. In order to more effectively retain these cadres, the job satisfaction of these cadres needs to be considered more robustly.

The case of Zambia

The main solution to the shortage of HRH in Zambia appears to reside in 2 key areas: firstly, improving the conditions of service and the workplace environment in order to better attract HRH; secondly, the deployment and use of staff more efficiently and effectively through improved HR management and practices.

The fundamental HRH problems are identified as:

- A public sector functioning with only half of the required health workforce
- High levels of internal and external brain drain
- Increased levels of attrition through deaths and resignations, and
- Imbalances in the distribution of health workers between rural and urban areas (MoH, 2005b)

In Zambia, although at a strategic level it appears that all the elements are in place to facilitate the upscale of key HRH, the main constraint to success remains the fact that no funding is available to take action.

Sub-optimal consideration and audit of all COs

In terms of the kinds of structures that need to be in place for successful scaling up of HRH in Zambia, it is encouraging to find that the country has taken steps to specifically strengthen pre-service training through the development of a Training Unit plan. However, in general, there is little consideration evident in the HRH policies, in terms of the training required to upscale the workforce, as well as no specific mention of MLHWs. In order for COs to more effectively be integrated into the Zambian health system, more focus should be placed on gathering and coordinating information on their training and output.

Although there are not very specific data on all of the MLHWs in Zambia, their Human Resources for Health Strategic Plan (2006–2010) does supply information on COs. At the moment, the main problem hampering such planning for MLHWs is the lack of information on the numbers, levels and distribution of training output of these cadres.

Lack of supervision and monitoring

Performance evaluation is well established in terms of the education and training program for COs and Medical Licentiates, but this is not true for practitioners. Where supervision and monitoring of the quality of programs does take place, this is not done centrally. Programs are evaluated internally and disparately, by the partners involved, and these are available as program evaluation reports. There is a need for the Ministry of Health to collate and verify this information in order to offer a better perspective of the supply side context in its consideration of how to respond to the HRH crisis in the country, by scaling up the use of MLHWs.

MLHWs - the invisible cadre

It is clear, that the central problem throughout all these cases is the lack of visibility of these cadres in public policy, and thus, the information systems and databases of relevant countries. The main obstacle in linking these cadres more effectively to positive health outcomes is inherent in the fact that despite their widespread use, they are virtually invisible in government policies and strategies (HSSE, 2011d). Until these cadres are more comprehensively considered, counted, and monitored, the positive impact that they can have on reaching the health related MDGs, will never be understood and realized.