Annex 6. Mozambique

Background

According to available data, over 22.8 million people live in Mozambique,[14] with a higher proportion of the population consisting of young people, which results in a higher household dependency ratio. The country has been affected by a prolonged period of conflict resulting in population displacement and settlement around the cities and towns, a situation that remained even after the end of the conflict. Bordering South Africa, Swaziland, Zimbabwe, Zambia, Malawi, Tanzania, and the Indian Ocean, Mozambique is essentially rural, as people living in the provincial capitals only comprise 23% of the total population. Despite recent progress in economic growth and improving welfare, Mozambique is still one of the poorest countries in the world, with a gross national product per capita of $3871. It is the lowest ranked country within the SADC region. Absolute poverty in the country is the expression of a series of economic and social factors such as low income, poor coverage of the health services (less than 50% of the population covered), lack of potable water, and basic sanitation. This situation is exacerbated by inadequate roads, lack of food security, and malnutrition related to the latter. According to the UNDP Human Development Index Rank, Mozambique ranked 172 out of 177 countries in 2007.

A long lasting war has severely impacted the current problems in the country, including the health system, whereby Mozambican health infrastructure has been severely damaged.[15] Overall, it appears that the health statistics for developing countries like Mozambique have not shown significant improvements toward meeting the Millennium Development Goals (MDGs) in 2015. The main obstacles towards attaining the MDGs have been identified by the WHO (2011) as:

- weaknesses in linkages and coordination 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.

Implementation of the Sector Wide Approach to Policymaking (SWAp) aimed to improve "the performance of the sector, strengthening government leadership, putting greater emphasis on policy and strategy development and lowering the transaction costs of foreign assistance".[14] In this regard, the health system has made significant strides in addressing the problems, but much work still needs to be done.

With life expectancy and fertility rates decreasing, and child and maternal mortality rates still very high, Mozambique faces a series of challenges in improving its health system.[14] These trends are not encouraging when comparing Mozambique to other nations with similar socio-economic conditions. The international community has set a target to reduce child mortality by 2/3 from base levels of 1990 by 2015. Mozambique's self-appraisal reports progress towards achieving the MDGs, and reveals that probably they will meet their child mortality reduction target. This appears ambitious based on a 39% reduction in the child mortality rate over almost 20 years, and that in order for them to meet the two-thirds reduction target, they would need to have another 28% reduction in only 5 years.

In general, "the health status of the Mozambican population is lower than average for African countries and far below international standards."[14] The country's burden of disease is largely a consequence of the high levels of poverty as well as a result of infectious and communicable diseases. Malaria is the major cause of morbidity and mortality, and is considered to be "endemic throughout the country in areas where the climate favors year-long transmission".[16] As noted by WHO in 2010, Mozambique has a "classical profile of diseases of poverty, with significant levels of pediatric malnutrition and a predominance of infectious diseases (malaria, tuberculosis, and AIDS)". This means that the environment is still conducive to high levels of infection and disease transmission. This situation needs to change drastically for measurable differences in the health of the population to be seen.

The SWAp is the cornerstone of the health sector's relationship with partners.[17] The health sector is heavily dependent on donor funding, and this mechanism helps to better structure the management and control of the sector.[18] It is clear that in a situation where the minority of the populace has access to medical doctors, the role that mid-level health workers (MLHWs) can play in assisting to improve health outcomes needs to be realized.

The objectives for the health system are closely related to those for the reduction of poverty in the country, and the Strategic Plan for the Health Sector (PESS) explicitly takes into consideration the MDGs.

The health system is predominantly public and organized into four levels of health care provision. Levels I and II are considered the more peripheral levels, where the intended implementation of the Primary Health Care strategy is located. Here, patients who need more specialized and curative care are referred to levels III and IV. The lower levels thus act as reference points for the higher levels. Primary health care remains the key driver of the system with the intention of reducing the high levels of morbidity and mortality related to transmissible diseases.

Health sector expenditures for the implementation of National Health Service activities are financed either by the state budget or multilateral donors. In fact, external aid was estimated to amount to roughly 73% of the total health budget in 2008.[14] In almost every developing country, expenditure on health falls short of the levels reported by developed countries. These countries rely heavily on external sources to finance their health systems and Mozambique is no exception.[14]

Situational analysis of MLHWs in Mozambique

Illustrating the complex set of factors needed to be considered regarding the role of MLHWs in Mozambique, Lindelow et al. (2004) aptly note that the "operation of an individual health care provider must be understood in relation to the financing, supply management, and support system in which the facility operates."[18]

Recent policy documents in relation to MLHWs

Although there is no specific MLHW Strategic Plan or Policy which explicitly sets out the role of these cadres in Mozambique, in 2001, Human Resources for Health (HRH) were recognized as a key priority for the Mozambican Ministry of HealtH.[16] The WHO country office in Mozambique asserts that the country's HRH shortfalls can be summarized and are characterized by very low absolute numbers of health care providers, with a specific shortage in rural areas, the further predominance of lower skilled health

workers, limited number of health care specialists and technicians, especially so in public health, planning and management.

The largest proportion of the health human resources (55%) is located in health centres, whereas 41% work in hospitals. While the majority of physicians, nurses and physiotherapists are located in hospitals, midwives, auxiliary nurses and pharmacists are mostly located in health centres.[19]

The lack of adequately skilled human resources for health is termed a crisis in the country, although this is found to be largely due to maldistribution resulting from an internal brain drain of HRH, particularly from the rural to urban areas. The external brain drain from the country to other countries across the globe is considered to be less critical. This HRH crisis is "explained by low salaries, poor working conditions in the public sector, lack of management capability at all levels, lack of decentralization, flaws in the personnel information system, and budget and planning issues."[15]

Amidst widespread acknowledgement of and concern about the health workforce crisis in the country, the MoH agreed on the creation of comprehensive Human Resources for Health Development Plan. This plan came to life in the form of the *National Plan for Health Human Resources Development (NPHHRD) 2008 – 2015.*

Leadership and management of MLHW

The responsibility to register and regulate all HRH in Mozambique falls with the Ministry of Health. This is the overall body that is responsible for the leadership and overall governance of the HRH in the country. It appears that the role is much better fulfilled in the public than private sector, where it seems that "health workers are registered only if they work for the NHS."[19]

The capacity to monitor and regulate the HR in the health system is negatively impacted by the lack of coordinated systems of HRH. A Personnel Information System (PIS) was created in 1998, but the capacity to adequately gather, manage and use these data is limited due to a lack of appropriate personnel with appropriate skills. For instance, the system covers all hospitals, but not yet all health centers, health posts, and not any health works in the private for profit sector. Routine data gathering through the PIS needs to be strengthened, especially at the most peripheral levels.[19] The country's ability to do this is severely hampered by the lack of health management and administration skills. There also does not appear to be a culture of using whatever PIS information is available for decision making at all levels in the health system. Although we are aware that the funding received from donors offers opportunities that have been used well in terms of supporting the training and deployment of personnel and providing them with improved financial incentives, it also has negative consequences. Ferrinho (2004) notes that significant donor dependency introduces difficult issues of coordination, control and respect for local specificities.[19] The extent of donor funding makes it difficult to co-ordinate information on HRH across different programs, but this should be made more routine so that the data can be gathered at a program level and then integrated in to the PIS.[19] Here, there appears to be a specific gap that could derive benefit from more systematic inclusion into the SWAp mechanism.

The HRH in the Mozambican health system appears to be characterized by a domination of elementary and basic level technical personnel with a smaller percentage of medium level and university trained personnel. This situation has improved over the recent period, with the MoH recognizing an increase in the proportion of medium level and university trained personnel between 1990 and 2000. The ability to make more positive progress in ensuring the correct combination of numbers and skills of HRH in

Mozambique is hampered by the poor state of the HR system in the country. As previously stated, this issue is exacerbated by poor personnel placement and management, and complex processes of career advancement.

The issues affecting the broader set of HRH heavily impacts the types of difficulties experienced by the management of MLHWs in the sector as well. The ability to plan, appropriately educate and train, manage and retain these cadres is influenced by the wider problems experienced in PIS. The government has made some positive strides in recognizing the need for an increased focus on HRH and this must be approached strategically, as evidenced in their HRH Development Plans 1992 – 2002, 2001 – 2010, and most recently, the 2008-2015 version.

A lack of coherence is recognized in the fact that while the management of high-level university trained health cadres is maintained centrally, the management of mid-level, basic and elementary cadres is decentralized to the provincial levels.

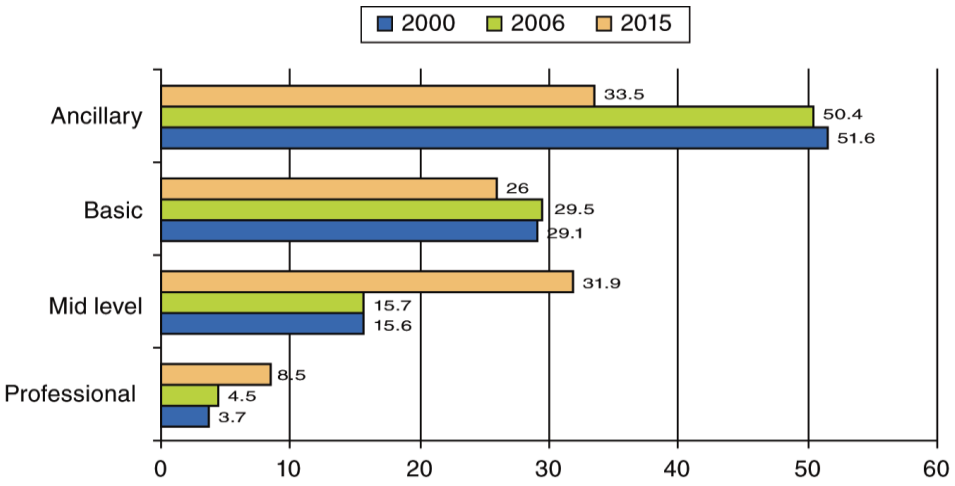
Deployment of staff is approved at the provincial level through the staff establishment set per province. Once in, the province health authorities will decide on specific placement based on need. Recruitment is based on a recruitment plan, but guided most practically by administrative and financial constraints. The major reason for staff loss is migration, mainly to the more urbanized areas, although mortality (especially of young staff) is playing a much larger role than in previous decades. The big role that HIV/AIDs plays in the increasing mortality and lack of overall good health of staff is problematic.

HRH problems in Mozambique are mostly related to poor interaction with the public, illegal and illicit payments, shortage of personnel and lack of pharmaceuticals.[19] It is not uncommon to find that most HRH supplement their primary incomes (usually in public sector employment) with either further clinical work in the private sector, or even a completely different field of employment. Exacerbating the problems of weak systems, management at the more day-to-day levels also appears to be problematic. As Ferrinho (2004) points out, parallel projects and dual employment also complicates the problem of personnel management.

Positively, as evidenced from health sector relevant policy, the HR situation and problems are clearly diagnosed and solutions properly considered at the macro-level, but this is in the first instance not always accurately reflective of local contexts, and the ability to diagnose is also not that well developed at the micro-level.[19] The problem of HR thus appears to be most problematic and illustrated in the practical application and management, rather than at the strategic level.

Because there is no strategic policy specifically for MLHWs, the exact numbers of each type, urban/rural, public/private and gender distribution in Mozambique are not easily available. In terms of the total health workforce in Mozambique, the latest HRH Plan indicates the distribution of staff by educational level (for the years 2000, 2006, and projections for 2015), presented in the figure below. It clearly indicates the predominance of elementary and basic levels of staff in comparison to mid-level and professional level staff. The 2015 projections, however, indicate an attempt to close this gap significantly, and some progress towards this goal is already noticeable. The plan reports on a significant growth in the number of secondary level employees, a reduction in the burden of auxiliary and elementary staff, and a slight increase in the number of higher educated staff. Based on this trend, the plan even moots a consideration to end secondary level courses in the future.

Figure 2: Mozambique, Percentage Distribution of NHS Staff per Level of Education, 2000, 2006, and 2015



In terms of sex, the overall HRH staff component is dominated by males, although differences in different professional groups exist. For instance, according to the WHO, amongst physicians, males predominate, while females predominate in the midwifery occupation. The majority of staff are middle aged, ranging between 30 and 59 years.

It is important to reflect on the general data limitations, as these, to a large extent, explain or illuminate the reasons why it is so difficult to get an adequate sense of the distribution and numbers of MLHWs in Mozambique. The HRH Plan reports on insufficient health network data, lack of knowledge on existing health facilities according to type, staff per category, age, gender and level of training. Furthermore, there is also for a lack of detailed information on existing equipment (for instance, the number of available beds and their purpose), the health facility's level of productivity, etc.

MLHWs in Mozambique

Mid-level health workers in Mozambique, using Dovlo's operational definition, is a result of 'direct substitution,' where an existing profession (in this case a medical doctor), is substituted with a new or different cadre of professionals (in this case, firstly, *tecnicos de medicina*, and secondly, *tecnicos de cirurgia*). These are termed to be 'true/full substitutes' as they carry out significant segments of the scope of practice of doctors, and in many cases, are allowed to perform these tasks independently.[10]

MLHWs in Mozambique were brought in primarily as an emergency stop gap to fill the need for physicians and clinicians during and post the war. Their services consequently at that time were centered around minor surgical care related to emergencies; at present they also provide emergency obstetric care. The training of these cadres has been recognized by government and most colleagues, and these providers enjoy formal support from its Ministry of Health (MoH).[20] The extent to which these cadres are established in the Mozambican health sector is clearly illustrated in that *tecnicos de cirurgia* have supported surgical care in district hospitals since 1989, performing 92% of emergency obstetric care and 65% of major general surgery.[21]

Three typologies (for nurses, *tecnicos de medicina* and *tecnicos de cirurgia*) and brief descriptions are presented below. A typology for nurses is offered, as many candidates enter as qualified nurses.

However, the descriptions below only illustrate the characteristics of *tecnicos de medicina* and *tecnicos de cirugia*, as the main MLHWs in Mozambique.

Brief illustration and development of TM and TC cadres

As stated before, the main types of MLHWs in Mozambique are the *technicos de medicina (TM)* and *technicos de cirurgia (TC)*. Whereas the TM developed as an entirely new profession to take over many of the clinical roles of doctors, especially in rural areas, the TC is a MLHW cadre that developed from the need for a better surgically trained TM cadre. TCs are also sometimes referred to as surgical technologists, while TMs are sometimes referred to as non-physician clinicians (NPCs).

Although TMs in Mozambique are also sometimes referred to as Clinical Officers (COs), this is not technically equivalent to a CO in Tanzania for instance (who would have less training and practical experience that a CO in Mozambique). To be a *tecnicos de medicina* requires fewer years of training than a *tecnicos de cirurgia,* and based on this they are at a lower level in comparison to TCs. Given the unmet need for emergency health care and life-saving skills, particularly in the area of obstetric emergencies and war casualties, the MoH decided to implement the further training of selected *tecnicos the medicina* to gain specialized skills in surgery and in so doing become qualified to practice as *tecnicos de cirurgia.*[8] TCs are viewed as occupying the specialized level of MLHWs in Mozambique, and thus would be considered equivalent to Assistant Medical Officers (AMOs) in Tanzania.

Recruitment and selection

The minimum entry requirement into the TM program is successful completion of the 10th grade. The duration of pre-service training is 30 months, and traditionally does not include HIV/AIDS content.[22] Although the 10th grade is the minimum requirement, many enter the program after matriculation or after having completed a nursing program.

Tecnicos de cirurgia (TC) are selected from the most promising and talented *technicos de medicina (TM)*. Not only must they have fulfilled the TM qualification, but they are also required to have at least 3 years of practical experience in rural contexts, as well as experience in surgery. They also have to undergo an interview and examination before entry into the course.

Roles and responsibilities

TCs are advanced mid-level cadres that are able to perform emergency surgery, obstetrics and traumatology under difficult conditions in district hospitals.[3] They are often the only available health care professionals in rural areas that can offer surgical services. TMs have a more restricted scope of practice in comparison to TCs, mainly in that they cannot offer more extensive surgical care, like emergency caesarean sections for instance.

Training (initial and on-going)

In order to become a TC, an individual must have already been qualified as a TM, as well as have at least 3 years practical experience. Their training involves an intensive 2 year training program, under the supervision of senior surgeons, as well as an additional 1 year internship in a provincial hospital (together forming a 3 year program).

Accreditation/ licensing bodies

The Ministry of Health (MoH Mozambique) maintains the responsibility for regulation of health care workers, while the Ministry of Education (MoE Mozambique) shares the responsibilities related to training (including the material and facilities).

Training institution

Table 7 indicates the network of training institutions to provide a sense of the opportunities available for the training of MLHWs in Mozambique. It is clear that the biggest proportion of institutions is placed to provide training at the mid-level (basic and specialized).

Table 7: Network of training institutions, Mozambique

Training Institution	Level	Hostel Capacity	Lecture Rooms (LR)	LR Capacity	Situation
HIHS/HIS Maputo	Midlevel Specialized	280	14	350	Being extended
HSI Beira	Midlevel Basic	160	7	175	In construction
HSI Nampula	Midlevel Basic	150	6	150	
HSI Quelimane	Midlevel Basic	130	6	150	Possibility to be replaced by new building
Sub-Total		*673*	*32*	*825*	
TC Lichinga	Basic	70	2	60	To move to new facilities
TC Pemba	Basic	72	4	120	
TC Tete	Basic	100	5	150	
TC Manica	Basic	100	3	90	
TC Chicuque	Basic	105	3	90	
TC Chicumbane	Basic	120	3	90	
Sub-Total		*567*	*20*	*600*	
TC Montepuez	Elementary	24	1	30	
TC Monapo	Elementary	30	1	30	
TC Nhamatanda	Elementary	64	2	60	
TC Mocuba	Elementary	60	2	60	
TC Marracuene	Elementary	108	3	90	To be reconstructed
Sub-Total		*286*	*9*	*270*	
Total		1526	51	1695	

Source: Ferrinho & Omar (2006)

In terms of the structure and identification of needs and provision, the bulk of training is planned at the provincial level, and implemented at the district level.[19] This decentralized structure is complicated by the extent and impact of foreign and donor involvement in the training sector. It does not only complicate the structure and management of provision, but also impacts on the numbers of HRH available. As noted by Pfeiffer (2003), the extent of international 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 having a negative consequence in that health workers are drawn away from their routine duties, with per diems offered that are equivalent to a month's salary for mid-level health workers.

Employment institutions

The Mozambican health system is organized into 4 levels, starting at the most prestigious;[22]

- Level 4: Consists of the country's 3 referral hospitals (Maputo, Beira and Nampula) offering top levels of care. It serves the southern, central and northern regions respectively
- Level 3: This is where provincial hospitals are found. These hospitals offer curative services, diagnostic services/equipment and training centres.
- Level 2: This is where one would find rural/general hospitals that offer basic diagnostic, surgical, and obstetric services. This level would include general medical doctors on their staff.
- Level 1: Health Posts (most geographically remote) and health centers (3 types depending on the number of beds and can be found in main cities, provincial and district hospitals) are found here. This level delivers at least 40% of all health services and is typically the first (and often only) point of contact with the health system for a large portion of the population.[18] These facilities have very basic resources and are mostly staffed by COs, nurses and medical technicians.

TMs are mainly assigned to rural hospitals (at the medium level of care), where they practice with the support and supervision of the provincial surgeon. They mainly work in public health settings, but can also be employed in the private sector. There is evidence to suggest that TCs should be placed in rural hospitals, where they constitute the backbone of emergency surgical care in Mozambique.[51] Although we could not find clear information (in terms of the rural/urban split) on where specifically the majority of different levels of health workers are situated, Table 8 indicates the distribution of health workers by level according to the different regions in Mozambique.

Table 8: Ratio of inhabitants per health level worker, or Ratio of inhabitants per level of health worker

Location	University trained	Mid-level	Basic level	Elementary level	Support	Total for doctors	Generalist doctors	Hospital specialists
Cabo Delgado	81936	9669	4865	9853	4174	111199	111199	
Niassa	55364	5409	3338	4278	2586	78433	78433	
Nampula	85010	10312	5677	7832	4039	120187	139417	871355
Zambezia	107876	13088	5788	12945	5205	131849	142397	1779962
Tete	49113	7157	3383	4828	2633	74961	74961	
Manica	56529	7147	4173	6008	2826	73155	73155	1243638
Sofala	25812	4542	2539	6347	1886	44250	44250	387187
Inhambane	61982	6684	3505	5185	3037	64933	64933	1363596
Gaza	68396	7342	3249	7220	4466	92823	92823	649761
Maputo Province	30568	6705	3188	6793	2264	37119	37119	1039321
Hospital Maputo	5190	1998	2021	598	2084	21609	21609	105883
Central Organisms	108949	63429	149365	173096	99577	430727	430727	1234750

Source: MoH Mozambique, HRH Plan (2008)

However, the Strategic Plan for the Health Sector (2001) reports that the referral system in the health sector has been distorted over the years and it is barely operational. One will thus find that patients will frequently use any level of health care provision.

Supervision, monitoring and personnel/performance evaluation

Supervision and personnel evaluation systems have been described as inadequate.[24] Although a new system of self-evaluation, to be discussed with the supervisor, was introduced in 2001, the training of managers and supervisors to appropriately carry out these evaluations remains limited.

Due to lack of supervision especially reported to be true in peripheral health care facilities in Mozambique, it is clear that the extent of monitoring and evaluation of HRH is poor in practice, although very structured systems may be in place at the policy level. The quality of clinical work is found to be weak in peripheral health units. Examples found in a study by Dal Poz and Machatine (1999) include: patients not being examined in some instances, prescriptions being done only on the basis of reported symptoms, the over-prescription and wrong dosages of anti-malarial drugs. They thus conclude that the work of medical doctors, who are the first level of supervision in health care facilities, is disconnected from that of other members of the health team, such as agents and medical technicians.

Salary incentives

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 insufficiently outlined. Rural health workers are entitled to a 50% bonus in terms of time spent in these areas, but this is highly subsidized by donors (Conceicao et al, 2004).

A new remuneration system was introduced in 2001, which considers different salary scales as a function of conditions of isolation for university trained personnel and, to a lesser extent, for mid-level workers.[19] In the absence of clearer information on levels of remuneration for different cadres, the table below indicates how the salary system is structured, by indicating the proportion of HRH salary mass received by different cadres in the health sector.

Table 9: Distribution of the salary mass per different levels of health workers, Mozambique

Position	Percentage
Management	4.2%
Higher level	18.1%
Mid-Level	24.6%
Basic- level	29.9%
Elementary and workers	8.7%
Auxiliaries (orderlies)	14.5%
Total	100%
Source: Ferrinho & Omar (2006)	

Retention

Unlike Zambia, which has a clear and specified retention policy for HRH, this does not appear to be the case in Mozambique. Thus, in order to specifically retain MLHWs in the health system, is must be outlined further. In order to, at the very least, present the issues that need to be addressed in the Mozambican health system to more effectively ensure retention, Table 10 indicates the main sources of dissatisfaction of its health workers.

Table 10: Sources of job dissatisfaction among health care providers, Mozambique			
Source of dissatisfaction	**Doctors**	**Nurses**	**Orderlies**
Social pressure to get special treatment or other favors		X	X
Barriers for professional upward mobility/ promotion		X	
Lack of continuing professional education		X	
Limited access to private work within the public sector ("special clinics")		X	
Delay in payment for work done in the "special clinics"		X	
Lack of respect by orderlies		X	
Lack of interaction among personnel	X	X	
Lack of basic supplies (syringes, gloves, etc)		X	
Bad hospital food for providers and patients		X	
Lack of transport	X	X	
Low salaries	X	X	X
Source: Ferrinho & Omar (2006)			

It is encouraging though that motivation and retention of HRH is one of the priorities identified in the latest Human Resources Development Plan (HRD). Most closely related to the development of an outright policy for retention, there is mention of developing a framework to justify a salary, subsidy and incentive policy acknowledging the specificity of HRH status.

Professional advancement

In an attempt to better motivate and retain MLHW 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 bachelor's 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.

SENIOR NURSES/MIDWIVES			
Development as a cadre	In Mozambique, senior nurses trained to perform Caesarean sections have achieved outcomes as good as those performed by specialist obstetricians. The training was part of an effort to make emergency obstetric care available at the lowest levels of the health system possible, particularly in rural areas where distance may be a significant barrier.		
Recruitment, selection & training	There are 4 types of nurses in Mozambique: • *An elementary* - educated to the 7th grade level and have eight months of additional training, roughly 15-17 years old, practicing primarily in rural settings, in health centers or health posts (out-patient clinics). • *Basic* - Educated to grade 10 and apply for additional training of 18 months, majority practice at the basic level. • *Medium* - Previously, educated to grade 12, but the MoH reduced the education requirement to grade 10 in response to the physician and nursing shortage. These nurses have an additional two and a half years of training, and are able to specialize in their training once they are medium nurses. Medium nurses may become "principal" nurses after 10 years of work experience and good performance evaluations. Mozambique hopes to raise the level of nursing throughout the country to the medium level. • *Senior* - Educated through grade 12 and then enter university for four years to earn a baccalaureate degree where a thesis is required. An examination is given by the university and this earns the licensure as a nurse. It was started in Maputo (Instituto Superior de Ciencias Saúde) in 2004, and the first class had 28 graduates in 2008. Because this is very new, the Ministry of Health has assigned each graduate to a rural health area where the need for health services with more skilled and educated nurses is quite strong. • There are four nursing schools in the country that provide education for the medium nurse. They are located in Maputo, Beira, Nampula, and Quelimane. Each of the 11 provinces has a training center.		
Roles and responsibilities	***General:*** • Recognizing and addressing problems in the woman and newborn before, during and after childbirth. • Offering general health information, including reproductive health care and family planning. • Referring women and newborns for higher level care when complications arise during and pregnancy and childbirth. • Providing additional health services in communities such as immunizations and treatment of common illnesses. • Elementary nurse: They bathe, dress, feed, take vital signs.	***Maternal health:*** • Maternal and Child Health nurses and basic midwives, are trained in the provision of basic and comprehensive EmOC, and in the diagnosis, treatment and monitoring of women with major obstetric complications, including interpersonal communication and counseling skills. • Caring for women during pregnancy, childbirth and the postnatal period. • Treating complications due to miscarriages and/or unsafe abortions • Providing pre-pregnancy advice and health education.	***Child Health:*** • Nurses can assist women to successfully breastfeed, and provide newborn care. • Midwives are licensed to providing essential childbirth care, as well as basic emergency obstetric and newborn care (EmONC). They are also authorized to prescribe life-saving medications
Accreditation/ licensing bodies	**Nurses:** Mozambique does not have a Nursing Council, although there is a professional association called ANEMO, the Mozambican Nursing Association. The Ministry of Health is responsible for regulation. Licensure is only required at the superior nursing level along with		

	an examination upon graduation. There is considerable discussion in Mozambique among ANEMO (the Mozambican Nurses Association), the Ministry of Health and nurses about whose responsibility it is to be the voice of nursing and to regulate the nursing profession. ANEMO is seeking to establish itself as the professional voice of nursing in Mozambique (www. nursingsociety.org). However, the Ministry of Health determines the curriculum and scope of practice for nurses. **Midwives:** The Ministry of Health regulates midwifery practice however, as well as the existence of a midwives association (Association of Midwives of Mozambique[1]). A license is required to practice midwifery. However, a recognized definition of a professional midwife does not exist, nor do midwives hold a protected title, nor is it recognized as an autonomous profession.		
Where do they work	Elementary nurses work primarily in health centers and rural hospitals.	Programs in primary setup & their selection process	Programs in secondary setup & their selection process
Supervision and monitoring in these programs	by whom/their designation and qualification	frequency of supervision	
Performance evaluation	Who monitors their performances and how frequently?	Outcome of evaluation	How many evaluations have taken place in the last X years
Salary/incentives	• Elementary –Less than US $100 per month. • Basic – Less than US $200 per month. • Medium – Approximately US $250-260 per month. • Senior - Their salary is US $450-500 per month.	Annual increments etc	Any added incentive different from nurses not working in these primary or secondary care programs
Retention	There does not appear to be an explicit policy on the retention of health workers in Mozambique.	Average span of the program they are working in	
Professional advancement	Many nurses, who have sufficient experience (at least 3 years), are recruited into the technicos de medicina/technicos de cirurgia programs. As there is currently, no university in Mozambique that offers a master's degree in nursing, the professional advancement in the nursing profession for a senior nurse is hampered.		

TECHNICOS DE MEDICINA (TC)			
Brief illustration	Técnicos de medicina, a mid-level medical practitioner, a key cadre at district level with clinical and managerial skills.		
Development as a cadre	These cadres developed out of the need for, and extreme shortages of medical doctors in Mozambique.		
Recruitment and selection	All candidates who want to enroll for the training must have 2 or 3 years of basic mid-level medical training (e.g. nurse or medical assistance) and several years of rural experience. In other words, one must be a nurse or a medical assistant to qualify for admission to the course. The most suitable applicants take an examination and are interviewed.		
Roles and responsibilities	***General:*** These cadres appear to not have specific responsibilities in terms of ensuring particularly maternal or child health. They developed out of a dramatic scarcity of health professionals in Mozambique after independence, and were trained in order to ensure better trained health care services, as the majority of health care providers were trained only at the elementary and basic levels.		
Training (initial and on-going)	In order to gain entry into a TM training program, one has to be a nurse or a midwife, with substantial experience in rural areas.		
Accreditation/ licensing bodies	The Ministry of Health is the main body responsible for the training and regulation of the practice of these cadres. In some instances the Ministry of Education also plays a role in supporting the MoH in the training and education aspect.		
Who train them	Most of the practical training occurs at the Maputo Central Hospital, while lectures would take place at a selected few schools. The lectures are delivered by specialists with several years of clinical experience. The departments involved in the theoretical and practical sessions are those of general surgery, obstetrics/gynecology. orthopedics and traumatology, emergency and intensive care, neurosurgery, urology, and maxillofacial and plastic surgery. The curriculum is approved by the Ministries of Health and Education. Health workers are trained at three types of institutions: Higher Institute of Health Sciences (HIHS), Health Science Institutes (HSI), and Training Centres (TC)		
Where do they work	They are posted to district or rural hospitals, where they practice with the support and supervision of the provincial surgeon. A TM can also provide minor surgical care. They work mainly in public health settings, but can also be employed in the private sector.		
Supervision and monitoring	By whom/their designation and qualification, and how frequently does this take place?		
Performance evaluation	Who monitors their performances and how frequently?	Outcome of evaluation	How many evaluations in the last X years
Salary/incentives	Initial monthly income And benefits	Annual increments etc	Any added incentive different from nurses not working in these primary or secondary care programs
Retention	What is the retention policy on these programs?	Average span of the program they are working in.	In Mozambique the general retention rate for técnicos de cirurgia at the district level, is significantly higher than the same rate for physicians.
Professional advancement	There is an overall sense from the MoH that in line with a vision to ensure better trained professionals, and also in recognition of the importance of retaining mid-level practitioners, that the major challenge for the next decade will be the development of BA level professionals, and as this development evolves that specialized mid-level technicians be given equivalence to BA professionals.		

TECNICOS DE CIRURGIA (TC)			
Brief illustration	Experienced clinical officers that undergo further residential training (2 years) in surgery under the supervision of experienced surgeons, as well as undergoing one year of internship. This person would already be qualified as a technicos the medicina, and have at least a further 3 years of practical experience in rural areas, as well as some exposure or surgical experience.		
Development as a cadre	These cadres developed out of the need for surgical and emergency care during the war, and then used most extensively specifically in emergency obstetric and gynecological surgical health care needs. In Mozambique, they provide advanced surgical services, often working autonomously in the absence of a traditional physician. They are most extensively specifically in emergency obstetric and gynecological surgical health care needs. They provide advanced surgical services, often working autonomously in the absence of a traditional physician. A Mozambican government policy response in 1975 initiated a new training policy, with an intensive program to train health workers, particularly nurses, midwives, and assistant medical officers "técnicos de medicina" to take the place of doctors in many roles.		
Recruitment and selection	The most promising and skilled technicos de medicina are recruited to enter the technicos de cirurgia program. Additional to the technicos de medicina qualification, they are required to have at least 3 years practical experience in rural areas as well as some surgical experience. They also have to take an examination and are interviewed.		
Roles and responsibilities	***General:*** They are skilled to perform a range of obstetric, general and orthopedic surgery health services (Caesarean section and obstetric, Craniotomies, Bowel resection and colostomies, Skin transplant, Splenectomies, War surgery).	***Maternal health:*** Obstetric Surgery Caesarean Section	***Child health:*** Obstetric Surgery Caesarean Section
Training of TCs (initial and on-going)	***Initial:*** Training of surgical trained assistant medical officers consists of 2 years of classroom-based instruction at the Instituto Superior de Ciencias de Saude	***Basic:*** All candidates for the tecnicos de cirurgia training program must have at least 3 years of basic or mid-level medical training 1 year internship under the supervision of a surgeon in a provincial hospital. After they have successfully completed their exam, they will be posted either in a district or rural hospital, with supervision provided from specialists at a provincial level.	***On-going:*** Most CPD training is planned at provincial level, to be implemented by districts. At provincial level Continuing Education Units have been emerging over the years. These units are usually poorly staffed. At district level training is poorly developed, without a systemic approach, particularly to the training of the most peripheral workers. Training lacks a link with the professional development demanded for career progression. Criteria for selection of the trainees are acknowledged as inadequate.
Accreditation/ licensing bodies	The Ministry of Health is responsible for the regulation of these cadres, whereas the Ministry of	In order to be a licensed practitioner, the individual must have successfully completed the 3 year TC	They are trained to carry out emergency surgery, obstetrics and traumatology and are deployed to the district hospitals

	Education is responsible for the accreditation of the training.	course, which would have included a 2 year theoretical component and a 1 year internship.	where they are usually the sole surgical care providers.
Who train them	Most of the practical training occurs at the Maputo Central Hospital, while lectures would take place at a selected few schools. The lectures are delivered by specialists with several years of clinical experience. The departments involved in the theoretical and practical sessions are those of general surgery, obstetrics/gynecology. orthopedics and traumatology, emergency and intensive care, neurosurgery, urology, and maxillofacial and plastic surgery. The curriculum is approved by the Ministries of Health and Education.		
Where do they work	They are posted to district or rural hospitals, where they practice with the support and supervision of the provincial surgeon. They are assigned to different peripheral hospitals in the country, mainly rural hospitals. Outside the three central hospitals (that serve 10% of the population), técnicos now constitute the backbone of emergency surgical care in Mozambique for 90% of the population (Pereira, 2009)		
Supervision and monitoring in these programs	All the students participate twice weekly in a 12-hour emergency service under the direct guidance of a specialist. Progress during the first two years is evaluated after three months and subsequently at intervals of six months, and examinations are held on material in a specially prepared textbook. The third year is a practical internship in a provincial hospital under the direct supervision of a surgeon.		
Performance evaluation	Supervision and personnel evaluation systems are inadequate; it is not systematic enough and suffers from the lack of skilled supervisors. Its effectiveness is limited by failure to give feedback to the workers supervised (Ferrinho, 2004). However, a study assessing perceptions of the standard of care provided by TCs found that 90% of doctors and other health workers rated highly the care provided by these cadres.		
Salary/incentives	In comparison to approximately $144 for doctors, TCs earn roughly $39 per major obstetric surgery.	There are additional benefits offered to the health personnel as incentives. For the total categories of health workers, benefits most commonly provided are health care insurance and paid vacations. However, looking closer at each category, physicians garner the greatest benefits from allowances for housing, while pharmacists claim the highest proportional benefit to be from allowances for transportation. Physiotherapists, nurses and midwives (professional and associate) benefit most from health care insurance. Having a delay in the receipt of payment is a common factor for all HRH; on average 33% of them have experienced such a delay (WHO 2004)	
Retention	The difficulties in retention will remain as long as loss is not quantified, as is asserted by Ferrinho & Omar (2006). There does not appear to be an explicit policy dealing with either the retention of health workers in general and technicos de cirurgia specifically.	Average span of the program they are working in.	In Mozambique the general retention rate for técnicos de cirurgia at the district level, is significantly higher than the same rate for physicians.
Professional	A TC can become a specialist by completing an additional 3-4 years specialized education.		

advancement	Additionally, the government for instance, created a High Institute of Health Science in 2003 for training of TCs, where they can obtain a bachelors degree in surgery.

Appendix 6.1

Country context

According to available data, over 22.8 million people live in Mozambique (WHO, 2011). About 44% of the population is under the age of 15, and on the upper scale, only 5% of the population is over 60 years of age. This means that a higher proportion of the population consists of young people, resulting in a higher household dependency ratio. The country has been affected by a prolonged period of conflict resulting in population displacement and settlement around the cities and towns, a situation that remained even after the end of the conflict.

Table 11: Selected demographic indicators, Mozambique

Indicators	Rate
Population (thousands)	22,894
Population (%), under 15	44
Population (%) over 60	5
Median Age (yrs)	18
Annual population growth rate (%)(1999-2009)	2.5
Living in urban areas (%)	38
Sources: WHO Health Statistics (2011)	

Mozambique is located on the east African coast, and covers a total surface area of 799,380 km2. It borders South Africa, Swaziland, Zimbabwe, Zambia, Malawi, Tanzania, and the Indian Ocean. Administratively, Mozambique is divided into 11 provinces, which in turn are divided into 144 districts. Maputo city, which has provincial status, is also the country's economic and political capital. Of the 11 provinces, the most populous are Zambézia and Nampula, which respectively have 20.34% and 19.47% of the Mozambican population. Females comprise 52% of the urban population, while people living in the provincial capitals only comprise 23% of the total population, which means that the country is essentially rural.

Mozambique has been successful in terms of economic growth and improving welfare, thanks to the mobilization of donor and domestic resources for investments in social and economic infrastructure. This has assisted in extending access to public services, reducing welfare inequities, and supporting the livelihoods of the average Mozambican. Despite this progress, Mozambique is still one of the poorest countries in the world, with a gross national product per capita of $3871. It is the lowest ranked country within the SADC region.

Absolute poverty in the country is the expression of a series of economic and social factors such as low income, poor coverage of the health services (less than 50% of the population) and lack of potable water and basic sanitation. For instance, in 2004, only 32% of the population used improved sanitation and 43% an improved water source. According to UNESCO (2010), there is high average illiteracy at 60%, with gender inequality prevalent in the large discrepancy between the average rates for males (39.4%) and females (71.3%). This situation is exacerbated by inadequate roads, lack of food security, and

malnutrition related to the latter. The population consists of people of African, European, Indian and Euro-European backgrounds. The Africans are in the majority at 90%. The official language is Portuguese, but other languages such as Emakhuwa, Xichangana Cisena, Elomwe, and Echuwabo are spoken. The majority of the population is Christian, and specifically, mostly Catholic.

The country's current GDP growth is over 10%, with its gross national income per capita being US$2089.[14] The country's household final consumption expenditure per capita PPP was stated to be at 561 in 2005. In terms of the multi-dimensional poverty index, which represents the percentage of the population living in poverty, the value was given at 79.8%. According to the UNDP Human Development Index, out of 177 countries in 2007 Mozambique ranked 172nd.

Overview of the Mozambican health system

The long lasting war has severely impacted on the current problems in the country, and specifically in relation to the health system, has severely damaged the Mozambican health infrastructure.[15] Overall, it appears that the health statistics for developing countries like Mozambique have not shown significant improvements to meet the Millennium Development Goals (MDGs) in 2015. The main obstacles towards attaining the MDGs have been identified by the WHO (2011) 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

The system thus struggles with fragmentation, which heavily impacts on the effectiveness of all health system resources. The implementation of their Sector Wide Approach to Policymaking (SWAp) aimed to improve "the performance of the sector, strengthening government leadership, putting greater emphasis on policy and strategy development and lowering the transaction costs of foreign assistance".[14] In this regard then, the health system has made significant strides in addressing this problem, but much work still needs to be done.

In Mozambique, the life expectancy in 2009 was 49 years, lower than the 51 years average life expectancy of sub Saharan Africa. The total fertility rate, although higher than in other parts of the region, has shown signs of improvement and decreased from 6.2 to 5.0 between 1990 and 2009. Access to healthcare is a major problem, with an "estimated 50% of the population living further than 20 kilometers from the nearest health facility."[16]

Child mortality rates are often considered to be "a reflection of the extent and impact of prevailing poverty levels and as a proxy indicator of socio-economic development."[14] Generally, it is more likely that a child will die before their fifth birthday in a developing country than in a developed country. In Mozambique, in 1990, the probability of dying before age 5 was 232 per 1000 live births. Almost 2 decades later, the rate has reduced to 142 per 1000 live births, a decrease of 39% over the period. This is encouraging, but not sufficient when comparing Mozambique to other nations with similar socio-economic conditions. The international community has set a target to reduce child mortality by 2/3 from base levels of 1990 by 2015. Mozambique's self-appraisal reports progress towards achieving the MDG's, and reveals a probability that they will meet their child mortality reduction target. This appears

ambitious based on a 39% reduction in the child mortality rate in almost 20 years, and in order for them to meet the 2/3rds reduction target, they would need to have another 28% reduction in only 5 years.

Many woman die during pregnancy and complications during labour. In African countries, the ratios are almost double than those of other continents, and especially so in comparison to developed countries. Nevertheless, some progress has been made between 1990 and 2009. The maternal mortality ratio was reduced by almost a half during this period, from 1000 to 550. Gains are also evident even in neonatal and infant mortality. These improvements inspire hope and belief that proper access to healthcare can become a reality.

In 2009, data for Mozambique show that the highest cause-specific maternal mortality is related to HIV and Malaria. The leading cause of death in Mozambique for children under 5 is malaria, pneumonia, and diarrhea, followed closely by HIV.[14] Essential interventions and practices to avert maternal and child mortality have been implemented, such as making emergency obstetric care accessible to women.[210] However, the role that MLHWs can play in these instances might need to be more heavily imposed and indeed recognized.

Table 12: General health indicators, Mozambique

Indicators	1990	2000	2009	% change
Life expectancy at birth (yrs)	48	48	49	2.08%
Total fertility rate(per woman)	6.2	5.7	5	-19.35%
Maternal mortality ratio (per 100 000 live births)	1000	780	550	-45.00%
Neonatal mortality rate (per 100 000)	53	47	41	-22.64%
Infant mortality rate (per 1000 live births)	155	123	96	-38.06%
Under five mortality (per 1000 live births)	232	183	142	-38.79%
Prevalence of tuberculosis (per 100 000 population)		425	323	-24.00%
Incidence of tuberculosis (per 100 000 population/year)		378	409	8.20%
Prevalence of tuberculosis (per 100 000 population)		425	323	-24.00%
Source: WHO Statistics report (2011)				

Main problems according to burden of disease

In general, "the health status of the Mozambican population is lower than average for African countries and far below international standards."[14] The country's burden of disease is largely a consequence of the high levels of poverty as well as a result of infectious and communicable diseases. The incidence of TB is particularly high at 10% of the population (2004), but without a doubt, malaria is the main contributor to the disease burden in this country. Malaria is the major cause of health problems, and is noted to be responsible for 40% of all outpatient attendance and approximately 30% of all hospital deaths (Roll Back Malaria situational analysis, 2001). It is also considered to be "endemic throughout the country in areas where the climate favors year-long transmission."[16]

As noted by WHO in 2010, Mozambique has a "classical profile of diseases of poverty, with significant levels of pediatric malnutrition and a predominance of infectious diseases (malaria, tuberculosis and AIDS)." This means that the environment is still conducive to high levels of infection and disease transmission. This situation needs to drastically change for measurable differences in the health of the population to be seen.

Main drivers of the national health policy

The Sector Wide Approach to Programming (SWAp) is the cornerstone of the health sector's relationship with partners.[17] The health sector is heavily dependent on donor funding, and this mechanism helps to better structure the management and control of the sector. The health policy framework for Mozambique has as its cornerstone the tenets of primary health care provision, as well as the related driver of equity and better quality of care to all its citizens. The importance of a focus on primary health care is illustrated by a reality where this is "frequently the only source of health care for most Mozambicans."[18] It is clear that in a situation where the minority of the populace has access to medical doctors, the role that mid-level health workers (MLHWs) can play in assisting to improve health outcomes needs to be realized.

The objectives for the health system are closely related to those for the reduction of poverty in the country, and the Strategic Plan for the Health Sector (PESS) explicitly takes into consideration the MDGs.

Structure of the health system

The health system is predominantly public and organized into 4 levels of health care provision. Levels I and II are considered the more peripheral levels, where the intended implementation of the Primary Health Care strategy is located. Here, patients who need more specialized and curative care are referred to levels III and IV. The lower levels thus act as reference points for the higher levels. Primary health care remains the primary driver of the system with the intention of reducing the high levels of morbidity and mortality related to transmissible diseases.

Financing of the health system

Health sector expenditures for the implementation of National Health Service activities are financed either by the state budget or multilateral donors. In fact, external aid was estimated to amount to roughly 73% of the total health budget in 2008.[14] This is a dramatic increase from 26.4% since 2000. In almost every developing country, expenditure on health falls short of the levels reported by developed countries, and these countries rely heavily on external sources to finance their health systems, and Mozambique is no different.

For international comparison, we also indicate the PPP$ (purchasing power parity) which is an indicator that reflects the amount of units required to purchase the same goods or service in a country in a particular year. The analysis of the data shows that government expenditures on health as a percentage of total government expenditures have fallen to 12.6% from 17.9% in 2009. On average, it is estimated that countries that have better health statistics spend up to 30% of their total government expenditures on health.[14]

Table 13: Selected health system financial indicators, Mozambique		
Health system finance indicator	**2000**	**2009**
Total expenditure on health as % of gross domestic product	5.9	4.7
Government expenditure on health as % of total government expenditure	17.9	12.6
External resources for health as % of total expenditure on health	26.4	80.8
Social security expenditure on health as % of government expenditure on health	0.3	0.3
Out-of-pocket expenditure as % of private expenditure on health	45.2	28.2
Per capita total expenditure on health at average exchange rate (US$)	14	21
Per capita total expenditure on health (PPP int. $)	26	39
Per capita government expenditure on health at average exchange rate (US$)	10	15
Sources: World Bank (2007), Global Poverty Working Group (2009), Development Research Group (2008)		