

HRH Wastage and Improving Utilization of the Health Workforce: Some Perspectives from African Countries

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Abstract:

Background: Sub Saharan Africa faces a human resources crisis in the health sector. Over the past two decades, its population has increased substantially and in addition there are significant rises in the disease burden due to HIV/AIDS, recurrent communicable diseases and an increased incidence of non-communicable diseases. This increased demand for health services are met with a rather low supply of health workers but this notwithstanding, Sub-Saharan African countries also experience significant wastage of their human resources stock.

Methods: This paper is a desk review based on suggestions that the way Human resources for health are trained and deployed in Africa does not enhance productivity and countries are unable to realize the full potential expected from the working life of its health workers. The paper tries to illustrate the various forms of “wastage” with data reported in various papers and communications.

Results: “Direct” wastage or avoidable increases in losses of staff through factors such as emigration and death is on the increase perhaps a result of the HIV/AIDS epidemic. “Indirect” wastage which is the result of losses in output and productivity from health professional’s misapplied skills, absenteeism, poor support and lack of supervision is also common.

HIV/AIDS represents a special cause of wastage in Africa. Deaths of health workers have risen exponentially in some countries and some are leaving the workforce for fear of infection. Burnout, absenteeism, heavy workloads and stress are common effects.

Conclusions: The paper reviews strategies that have been proposed and/or implemented and suggests areas needing further attention. These include developing and utilizing indicators for monitoring and managing wastage; Enhancing motivation and morale of health workers; Protecting and valuing the health worker with enhanced occupational safety and welfare systems and establishing the “Moral Leadership” to effectively tackle HIV/AIDS and the brain drain.

Key Words: Health Workers Wastage, Retention, Productivity, Performance, Attrition, Migration, HIV/AIDS.

1. INTRODUCTION

Africa, unlike the other continents, faces a severe human resources crisis in the health

sector. The continent's economic performance has been poor which has affected the ability of countries in sub-Saharan Africa (with few exceptions) to sustain credible health services and to train, employ and utilize health workers most efficiently. Economic growth has been low or negative in many countries, with investments in health that has generally been inadequate both as proportions of GDP and in gross terms. Motivation, incentives and productivity and retention of health workers have been severely affected. Furthermore, over the past two decades, the population of countries in the SSA region had increased significantly with major expansions in the disease burden due to HIV/AIDS, recurring high levels of communicable diseases and recent rises in the incidence of non-communicable diseases and other diseases related to diet and lifestyle changes. However, in the face of the high demand for health services that the foregoing entailed, Sub-Saharan Africa has had low supply of health workers and this notwithstanding, also experiences significant wastage of its human resources.

Whilst recognizing the paucity of health workers in Africa and the retention and motivation difficulties, this paper suggests that the way human resources in health are trained, deployed and managed by many of the countries in the region reduces their productivity and thus these countries are unable to realize the full potential that could be reasonably expected from the working life of its health workers. The potential of health workers to produce health, even within the constraints alluded to, is often shortened by severe attrition and other more indirect forms of “wastage”.

The term “Wastage” used in this paper refers to *“the loss in utility of health workers/health professionals due to attrition or poor productivity that can be prevented or managed and which is over and above what is expected in normal work situations”*.

Wastage of human resources may be seen from a variety of view points. In some countries, wastage may result from under- or non-utilization of trained personnel resulting in unemployment caused by overproduction, retrenchment or an inability to absorb certain skill types. Others experience wastage as when a health system is unable to realize the full potential and skills of its health workers even when fully employed and this second area of wastage is felt to be a problem for a number of health systems in sub-Saharan Africa. Wastage thus goes beyond mere attrition or the losses normal or otherwise that occur from within a workforce.

For the purposes of this review and based on the foregoing definition, “wastage” has been classified into two main forms – a “Direct” and an “Indirect” form of wastage.

“Direct” wastage occurs when avoidable loss of health personnel arise from factors such as emigration and death (i.e. complete losses to health sector) and reflects attrition of people from the health workforce. **“Indirect” wastage** is the result of losses in output and productivity of health professionals such as that arising from absenteeism and poor performance. **HIV and AIDS** is discussed in this paper as a special cause of wastage with combined effects of both direct and indirect wastage. Though various aspects of the impact of HIV/AIDS on health workers reflect either direct or indirect losses, the severity of its effects merits separate attention. Deaths of health workers have risen exponentially

in some countries in recent years and many health workers may be leaving the workforce from fear of infection. Burnout, absenteeism, and stress among staff are other effects of HIV/AIDS.

The premise of our discussion is therefore that human resources in health in Africa face many challenges and is in a crisis, but the available resources that countries use face following losses in utilization:

- Preventable exit of professionals from the workforce is a major wastage. Deaths, early retirement, emigration and retrenchment have also shortened the optimal working life of health workers.
- Excess production of some types of health workers have occurred without adequate utilization or with under or unemployment
- Supply of Health Workers may at times be inappropriate with skills and scopes of practice which may not match service delivery needs.
- Poor HR management results in sub-optimal deployment and utilization of professionals.
- Staff time may be inappropriately applied – for example in some countries heavy load of in-service training activities and general administrative duties by technical staff reduces time available for service delivery.

This paper is intended to help identify and clarify causes of wastage and discuss possible indicators which may assist health care managers to monitor, manage and reduce the various forms of wastage. Using experiences from sub-Saharan Africa, wastage of health workers is illustrated by factors such as increased pre-retirement mortality, early and premature retirement, increased emigration, high levels of workplace accidents and injury. Whilst the review did not determine any current standards or benchmarks that exist to show routinely expected levels for such wastage, trends and comparisons between similar countries point out some problem areas. In the following sections, the concept and evidence of different forms of wastage are discussed using experiences and information from African countries.

2. DISCUSSION

In this section, the paper examines the various modes of the two types of wastage defined above and illustrates some of the situations in which these occur. In addition, the paper further reviews as an exceptional case, the impact of HIV/AIDS on wastage of human resources for health.

DIRECT WASTAGE

Attrition of workers from any form of employment is an expected factor in human resource management as workers change jobs, retire or die. However, if for any reason the rate of attrition is higher than normally anticipated, then this may reflect a problem and “Direct Wastage” as discussed here represents those losses from the stock of health professionals that are considered to be over and above the norm. These wastages can

present in many forms, and from this review some of wastage types encountered are represented below.

Movement from health into non-health professions: Health professionals may leave health work altogether and do something completely unrelated. Whilst these have not been fully studied in the literature reviewed, they appear to be a small proportion of the loss of professionals. Dovlo and Nyonator (1999) studying a cohort of 192 doctors in Ghana found only 2 had changed professions completely (had become full-time Ministers of religion)[1]. The Mozambique Health Ministry (2003) said 18 nurses changed jobs in 2002, of which five retrained as doctors and others went into Psychology, Law, Biology, International Affairs and Geography[2]. A 1999 study of health worker migration showed that the proportion of nurses leaving the workforce who chose to leave before their working life ended ranged from 23% to 78% of all leavers depending on the country [3]. Table 1 shows the proportion of staffs departing from the health workforce who leave public sector employment prematurely in some African countries. There is no indication as to whether these leavers remain in health work or within the country. Work done for the Joint Learning Initiative on Human Resources for health by Dare et al[4] (also indicated that 7.9% of doctors in Nigeria worked outside the health sector.

Emigration/Brain drain of health professionals: Significant increases in the migration of health professionals have occurred in recent years but monitoring of emigration flows are difficult as few countries keep adequate statistics. Dovlo and Nyonator (1999) estimated that between 1986 and 1995, 61% of doctors who qualified from one medical school in Ghana left the country[5]. Of these, 6.2% had migrated to another African country (South Africa), but most went to the UK (55%) or the USA (35%). Huddart and Picazo(2003) indicate that 840 out of 1,200 doctors trained in Zimbabwe in the 1990s left the country and 17 percent of locally trained physicians and dentists left the Sudan in the 1980s and 1990s[6]. In the case of Ghana, the physicians had left within ten years of qualification spending less than a third of their expected life span of their services. Whilst the numbers emigrating are in themselves problematic, they however hide serious qualitative consequences which occur when losses of even small numbers of specialists and tutors create a much wider effect on the training of new health workers and in sustaining quality. For example, Martineau and Decker (2002) report that the recruitment of just two specialized anesthetists from the Boxburg Centre for Spinal Injuries in South Africa by a Canadian Institution led to permanent closure of the unit[7].

In smaller countries, even minimal numbers of migrants represent significant losses. In relatively wealthy Mauritius, the Ministry of Health estimated that 327 (avg 12.9% of nurse workforce) nurses migrated from an average annual nurse workforce level of 2534 between 1998 and 2001. 89% went to the UK, 8% to New Zealand and 3% to Canada and United Arab Emirates[8]. Whilst the impact of these losses have not been thoroughly studied, it has been suggested (Dovlo, 2002, Meeus, 2003,) that migration means a loss of the investment made into health workforce development which creates equity and distribution problems within the country's health systems, and causes high workloads, poor quality of care and low morale among health workers[9, 10].

Work induced injury, accidents, deaths as causes of premature loss from the workforce: The past decade has shown marked increases in death rates of health workers in some African countries. Picazo & Huddart (2003), Tawfik and Kinoti (2003) among others have ascribed these deaths to the silent impact of HIV and AIDS on the health workforce[11, 12]. However, African health systems can also be blamed for work environments that induce high levels of occupational accidents or create a strong perception of high risk[13]. The Chief Nursing Officer of the Ghana Health Service has suggested at a national HRH forum that high workload and stress may have contributed to higher than usual trends in nurses' deaths (at about 26% rise in nurse deaths between 2001 and 2003) in a country with comparatively low HIV prevalence rates.

A study of nurses and teachers in Ghana (Clarke 2003) showed cervical spondylosis as the 2nd commonest cause of morbidity among nurses with nurses being 21.5 times more likely to develop lower back pain than teachers and 1.4 times more high back pain [14]. Despite the lack of benchmarks on the expected levels of morbidity and mortality, the rising trends in death and disability over the years depicts a serious problem.

HIV/AIDS will be discussed later in this review. However it is mentioned here as a major contributor to “direct wastage” due to high death rates being reported among health workers. A 1999 study found that among workers leaving public health services in Malawi, 25% of clinical officers and 51% of nurses leaving had died compared to deaths constituting 1.1% deaths among all staff leaving Ghana's Ministry of Health. Recent Government of Malawi/UNDP work has been quoted in Aitkin and Kemp (2003) that shows rising deaths as constituting the main cause of losses from the Malawi health workforce [15].

Inefficient Personnel Administration: HR management in many African countries is part of civil service administration. For example, it was found that in Lesotho, recruitment delays meant new health workers at times spent a year before being appointed and sometimes an entire batch of new nurses are lost to the public service due to delays in processing their appointment[16]. Moreover, structural adjustment policies aimed at reducing public sector expenditures have led to retrenchments and a recruitment freeze in countries such as Cameroon and Uganda even in the face of low availability of health workers and poor coverage of health services [17]. One attempt aimed at addressing management deficiencies was the examples of Zambia and Ghana in “de-linking” health services from the Civil Service and created new autonomous agencies (“Zambia Central Board of Health” and “Ghana Health Service”) aimed at creating a more efficient management system. In Zambia anecdotal evidence suggests this experiment had not worked out well for several reasons related to transfer of workers' benefits and pensions to the new agency. In Ghana, the de-linked agencies (two tertiary hospitals and a Ghana Health Service) have been established and are gradually extending their autonomy. The literature is not available to indicate whether implementing these structures have improved HRH management or not and given the available migration data, have not improved retention and motivation of staff.

INDIRECT WASTAGE

The concept of “Indirect Wastage” as contrasted to “direct wastage” implies losses that arise from inefficient productivity or utilization of health workers. Such waste of human resources is the result of the inefficient or poor utilization of staff already employed and providing services. Other forms include the “ghosts” that plague payrolls whilst restricting room for new employment as well as the inappropriate use of skills. Almost all the issues discussed in this section border on the effective management systems for human resources, however, the contentions raised below elaborate on some of the aspects of indirect wastage of staff derived from examples in African countries.

Wastage as unemployment of available staff: In sub-Saharan Africa, even with its well acknowledged shortages of health workers, unemployment occurs. Ngufor (1999) in Cameroon suggested that structural adjustment policies and related fiscal limits on governments have meant that new health graduates are not employed even when the demand exists and rather retrenchments from the public sector continued to be encouraged [18]. Personal communications from a Deputy Commissioner of Health for HRD in Uganda also confirmed this problem. A second factor is the blockage of health worker positions by “ghost workers” – persons who fill the payrolls but do not actually exist at workplaces. A recent report (“Health Workforce Challenges: Lessons from Country Experiences” HLF Abuja December 2004) on case studies of African countries commissioned by the High level Forum on the MDGs found for example, that Kenya found some 5000 ghost workers on its payroll.

Wastage as ineffective staff Utilization: Under-utilization often occurs when “staffing norms” and “established posts” in the public service do not relate to actual workload needs but are standardized by facility type. Under-employment and under-utilization may result in such situations as facilities with widely varying patient loads may have the same staff strength with redundant staff in some areas and overworked ones in other facilities.

Along with under-utilization is some level of “mis-utilization”. Delegates from Malawi attending a migration conference in South Africa suggested that trained midwives may be avoiding postings into labor and delivery wards for fear of possible risk of exposure to HIV infected blood. Thus less qualified staffs are left to offer the services instead [19]. The Ghana Health Service for example employs 5.3% of all its doctors in mainly managerial functions at its administrative Headquarters whilst the deprived Upper-West Region with a population of about 600,000 had only 1.5% or 10 doctors. [20]. Thus the utilization of health professionals in administrative roles or in inappropriate duties represented a form of wastage of the available resources.

Wastage resulting from poor skills/cadre mix: Kenya, Ghana, Zambia, Malawi, Lesotho have banned enrolled nurse training even when significantly increased migration of registered nurses had severely reduced the nursing workforce. The result is in creating a workforce that is highly internationally mobile and costs more to remunerate whilst being made to carry out some tasks that enrolled nurses could readily do. The use of other mid-level health workers has often been limited by restrictions in scopes of practice

and resistance from the more established professional groups

Again, despite the high need for rural health services and the high migration rate among its doctors, the health sector in Ghana produces 6 times more doctors annually than medical assistants who are better retained and are more likely to be found in rural areas [21]

Wastage arising from low health worker performance and outputs: The volume and quality of work expected from otherwise competent staff is not always forthcoming and many reports exist of absenteeism and low productivity among health workers. The main referral hospital in Ghana (Korle-Bu Teaching Hospital) in its 2002 Annual Report, recorded 1334 sick days-off in 2002 by 556 nurses from a total nurse workforce of 809[22]. Thus 70% of the nursing workforce reported ill during the year, an average of 2.4 days off per nurse. Staff time is also lost writing reports and carrying out basic administrative tasks. Absenteeism from HIV/AIDS is discussed separately.

The large amount of in-Service Training carried out by various programmes is recognized as one of the sources of wastage through sanctioned absences of staff. Though training provides skills and may arguably enhance productivity, it has sometimes provided an inverse incentive in poor countries due to generous allowances received as participants. Key staff members spend a lot of time in training courses organized by various agencies and programs.

We had earlier under direct wastage recognized the role that the migration of trainers and specialists play in mitigating the effectiveness of the remaining workforce's productivity. Achieving viable productivity requires a good mix of professions, adequate numbers providing good supervision.

f. Wastage from mal-administration of Human Resources:

The poor management of human resources for health found in many sub-Saharan African countries is likely to contribute to widespread mal-deployment and mal-distribution. It contributes directly to wastage in specific ways. "Ghost" workers are a problem in many African countries as HRH administrators lack good staff databases and payrolls systems are poorly managed. Poorly or non-regulated "Dual practice" carried out by public sector doctors and nurses working in the private sector may lead to neglect of their government duties. Poor support and supervision of health workers was cited as a problem in many African countries at the Commonwealth Workshop on Developing Strategies for Attracting and Retaining Health Workers in January 2003.

Distribution problems in Ghana for example, have resulted in the country's 3 most deprived regions that have serious maternal mortality problems, having only a single gynecologist and two surgeons serving 1/3rd of the country's land area and 1/6th of its population whilst 35% per cent of all health staff are found in just 2 teaching hospitals [23]. Distribution problems are common with rural and peri-urban slum communities probably the most deprived of trained professionals.

HIV/AIDS and HRH – A Special Case of Wastage

The impact of HIV/AIDS on the workforce, as alluded to previously, creates both direct and indirect forms of wastage. Its complex and self-reinforcing negative impact on the health workforce merits specific mention as a major emerging source of HRH wastage.

A study by Buve et al's in Zambia showed that mortality rate among female nurses in 2 hospitals rose from between 2 per 1000 in 1980-85 to 26.7 per 1000 in 1989-91[24]. World Bank projections quoted by Kinoti (2003) expect that a country with 15% adult sero-prevalence rate for HIV can expect to lose between 1.6 to 3.3% of its health care providers from AIDS annually, a direct wastage[25].

However, indirect wastage from HIV/AIDS can have as bad an effect as the direct wastage noted above. Kinoti and Tawfik (2003) estimate that absenteeism can consume up to 50% of staff time in the final year of life for health workers with AIDS. Calculations from Botswana showed that if the average infected health worker lost 60 working days in their final year of life this would translate into the public health sector losing 23,000 person days in 2003 alone[26]! This excludes absenteeism arising from workers needing to attend numerous funerals of relatives and co-workers and other forms of indirect wastage. Few countries in sub-Saharan Africa appear to have instituted programs aimed at health workers and to cater for their counseling, support and ARV treatment needs. A recent press release reporting collaboration between International Council of Nurses, Zambian Nursing Association and the pharmaceutical firm Boehringer Ingelheim to supply nevirapine for benefit of health workers is one of the new initiatives that need to be expanded quickly [27]. Managing the impact of HIV/AIDS on the health workforce in high prevalence countries must necessarily be an important aspect of reducing both direct and indirect wastage and improving productivity from health professionals. The huge need that will be generated by the global initiative to treat 3 million persons with ARVs by 2005 may further encumber the existing workforce reducing their allocation to provide services for routine non-project conditions.

3. REDUCING WASTAGE AND IMPROVING STAFF RETENTION:

In table 3, the paper suggests indicators for various aspects of health worker wastage as a framework that country HR managers may utilize in monitoring the extent of various forms of wastage. Indicators for direct wastage depend on having a fairly robust human resources information system or the ability to carry out surveys from time to time to determine trends. In our study, numerator difficulties have sometimes made the use of data for indicators difficult. Whilst we could determine losses from the workforce through civil service statistics the numbers of workers actually in the workforce for example was more difficult to determine with accuracy. However, the shifting trend in the number of deaths as a proportion to the total number of people leaving the public service is clearly rising and this paper suggest could be a fairly simple system of monitoring such changes. In some countries, the reasons for leaving the workforce are

not recorded in much detail and utilizing exit interviews or forms are recommended as a way of collecting data. It was difficult to think of routine ways of monitoring “ghost” workers apart from snap census at workplaces using the payroll. These will probably not work as tools for regular routine implementation.

Indicators for indirect forms of wastage are much less categorical and more complex than those for direct wastage. For example given the difficulties with data on employed health workers it might be difficult to determine numbers in the population that are unemployed. This could be collected from census data but these take place at long intervals. Skill mix also represents a challenge as the standards vary widely between countries and not many standardized benchmarks exist. Again, this may best be served by surveys showing trends and changes rather than measurements against a particular standard.

Workload standards are important to determine under-employment and appropriate distribution and deployment of health workers. Indicators can then be prepared to match staffing levels with workload. A difficulty here is that workload may vary according to seasons or with other factors and thus data must be observed for a period before major changes are made.

Utilizing data to manage wastage is only useful if management systems are coherent and countries are attempting to put in place strategies to cope with wastage in a comprehensive way. A number of coping strategies have been tried and many more proposed. Strategies implemented have included improving incentives and motivation of health workers through various mechanisms. In Ghana, incentives include new extra duty allowances, vehicle loans, cash incentives for rural based health workers, and local specialist training opportunities. Alternatively, Eritrea exacts a 2% income tax on its citizens living abroad and such remittances is at the level of 85.8% of development Aid received whilst others like Nigeria have remittances from its émigré community as significant sources of foreign exchange far outstripping Official Development Aid [28].

Using clinical officers and medical assistants to deputize for doctors may be disputed but these cadres are less internationally mobile and do mitigate shortages caused by emigrating doctors, provide comparable quality of service and are more likely to serve and remain in rural areas[29]. Some countries have sourced doctors from Cuba and some others recruit significant numbers of health workers from other African countries.

The paper has not dealt with the movements between the public and private sector within countries as these are deemed to be part of the health system and not wasted. Concerns however exist about the possible neglect of rural areas in siting of private facilities and hence the pull of health workers to urban areas away from other geographical zones with more needs. Moreover, dual practice by public sector health workers in the private sector may well induce wastage as neglect of their public sector duties may ensue as a result. Private sector professionals were most significant in Nigeria, Kenya and South Africa among other countries.

4. CONCLUSIONS

Caught in a vicious cycle, the poor African economies are unable to fund systems to manage and control wastage adequately even as new international investment in the health sector increased demands on staff whilst restricting investments into incentives. The HIV/AIDS epidemic combined with the economic crises threatens even the few coping mechanisms that are being attempted[30].

What can be done to alleviate the problem? The capacity of countries' HRH departments have to be strengthened and development partners and governments need to invest significant portions of health budgets into building capacity not only through training, tools and technology, but with incentives to retain staff. Currently, most Health Sector Human Resources departments are managed as part of the general civil service and have little influence on policy development and may lack specialists in health human resources planning and management.

Motivation and Morale are key factors in wastage. How can this change?

Governance and leadership in health is must now be expressed as tangible actions that result in senior managers and policy makers valuing and respecting health workers. New career and incentives systems must be developed along with better social and technical support for health workers. Real or perceived occupational risk from the health workplace appears to contribute significantly to low morale and consequent wastage. The Public Sector must establish occupational health services that assure prevention and treatment for workplace incidents. An essential component of this service should include voluntary counseling and testing as health workers also need education on HIV/AIDS as well as the ARV treatment policies that are becoming more available in other industries.

Is Moral Leadership needed? There is almost a sense of helplessness in dealing with the HRH crises in Africa. Because health managers anticipate that development partners will avoid support for HRH incentive issues they now rarely include them in their proposals to the global funding agencies. Emigration is another area where international action has mainly been in the form of voluntary “codes of conduct” that have had little effect. Economic, labor market and human rights arguments are made by the developed countries' as the basis for their reluctance to assist developing countries to manage emigration more effectively. However, the HRH crisis in Africa requires that countries on both sides also create a moral discourse to take actions that will improve the health of Africans.

5. List of Abbreviations

HRH	Human Resources for Health.
HIV	Human Immuno-Deficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
HR	Human Resources
UK	United Kingdom
USA	United States of America
UNDP	United Nations Development Program

ARV Anti-Retroviral Therapy
HW Health Workers

6. Competing Interests

None.

7. Authors Contribution

Dr. D. Dovlo was the sole author.

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10. TABLES

Table 1: Voluntary Leavers : example of direct wastage – Selected Countries 1999

Cadres	Ghana		Lesotho		Namibia		Malawi	
	Total Leavers	% Voluntary	Total Leavers	% Voluntary	Total Leavers	% Voluntary	Total Leavers	% Voluntary
Nurses:	744	58.7%	NA	NA	47	78%	43	23%
Doctors:	315	84.4	NA	NA	16	93.8%	18	83.3%
Others/All	-	-	50	62%	-	-	17	76.5%

Source: Dovlo, D. (1999). Report: Issues affecting the mobility and retention of health workers/professionals in Commonwealth African States. A consultancy report prepared for the Commonwealth Secretariat. London, UK.

Table 2: WASTAGE MONITORING FRAMEWORK:

DIRECT WASTAGE		
FACTOR	E.G of CONTRIBUTION TO WASTAGE	POSSIBLE INDICATORS
Movement from Health to non-health sector.	Probably small. 2 -20 staff per year (Ghana. Mozambique, Namibia,)	<ul style="list-style-type: none"> % of job leavers exiting health work completely (Exit Interviews)
Emigration to health sector outside country	10% of Mauritian nurses, 61% of Ghanaian doctors.	<ul style="list-style-type: none"> Certificate Verification Rates Routine Leaving data, eg. Resignations
Deaths, Injury & premature removal from the workforce.	High significance with HIV & AIDS. Ghana 1.1% deaths compared with Malawi (<55%) of leavers.	<ul style="list-style-type: none"> Mortality Rates as % of workforce leavers, or Mortality rate in workforce,
Inappropriate Admin. Systems & Policies	Affects other losses. Delays lose work input and may increase likelihood of emigration.	<ul style="list-style-type: none"> Average Recruitment Duration. Staff recruitment rate vrs vacancies.
INDIRECT WASTAGE		
Wastage as unemployment	Not well documented in Africa. Estimates of “Ghost Workers”?	<ul style="list-style-type: none"> Unemployed HWs as % of total workforce. (for each cadre)
Wastage as under-employment	Data is not routinely collated but staff/workload indicators may help.	<ul style="list-style-type: none"> Staff workload Indicators eg; Out and In-Patient staff per cadre
Wastage as a mis-utilization	Significant in countries with senior medics and nurses as managers.	<ul style="list-style-type: none"> % Staff: Technical or Professional in Full Time Managerial/Admin function
Wastage as in-appropriate cadres	4-6 cadres for ‘package of services’ delivery in Ghana.	<ul style="list-style-type: none"> Workforce composition of skilled and semi-skilled staff
Absenteeism, low outputs.	2.3 Days per staff sick; 1.65 days off per all staff (Ghana),	<ul style="list-style-type: none"> Number of Days off per staff, per annum.
Mal-deployment & distribution:	Distribution Differential: Doctors(Ghana): Best 1:16201 worst 1:66071	<ul style="list-style-type: none"> Doctor/Nurse Popn. ratios in different parts of country.
Wastage from mal-administration of HR	Difficult to assess quantitatively. E.g?100% of new Lesotho nurses not recruited in 1998	<ul style="list-style-type: none"> Recruitment and retention rates of new graduates of health training schools.